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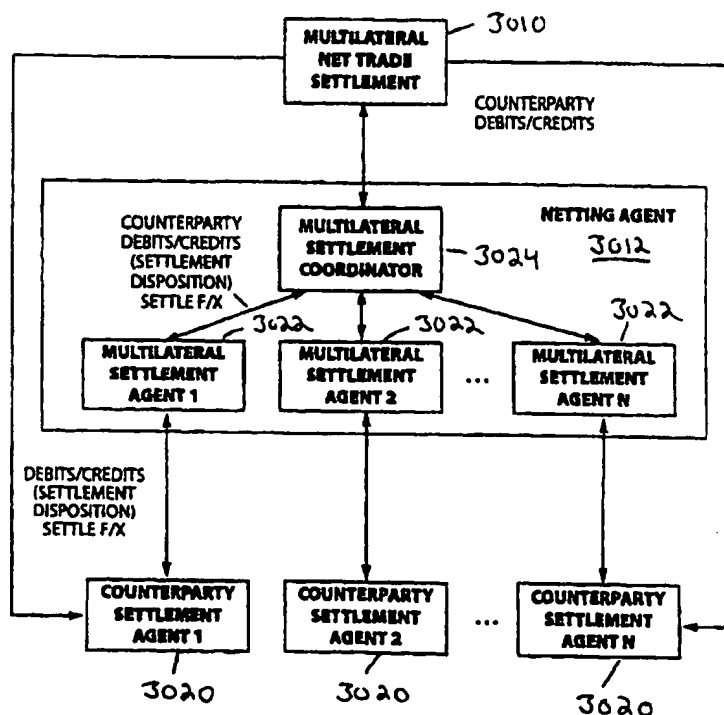
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(21) International Application Number: PCT/US96/18787 (22) International Filing Date: 21 November 1996 (21.11.96) (30) Priority Data: 60/007,420 21 November 1995 (21.11.95) US Not furnished 21 November 1996 (21.11.96) US (71) Applicant: CITIBANK, N.A. [US/US]; 399 Park Avenue, New York, NY 10043 (US). (72) Inventor: ROSEN, Sholom, S.; 10 West 86th Street, New York, NY 10043 (US). (74) Agents: CALVARUSO, Joseph, A. et al.; Morgan & Finnegan, L.L.P., 345 Park Avenue, New York, NY 10154 (US).			(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published Without international search report and to be republished upon receipt of that report.

(54) Title: FOREIGN EXCHANGE TRANSACTION SYSTEM

(57) Abstract

A realtime multilateral foreign exchange settlement system having a computer implemented netting system, a processor-based multilateral settlement coordinator (MSC) having a first money module and a first host application, where the first host application receives debit and credit data from said netting system. A plurality of processor-based multilateral settlement agents (MSAs) each having a second money module and a second host application. A plurality of processor-based counterparty settlement agents (CSAs) each having a third money module and a third host application. The second and third money modules communicate via cryptographically secure sessions. The first money module receives electronic money from the third money modules of net debit CSAs via the second money modules. When all net debit counterparties have paid, the first money module sends the electronic money to the third money modules of net credit CSAs via the second money modules.

MULTILATERAL FX SETTLEMENT CONFIGURATION



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EMS Security Hierarchy

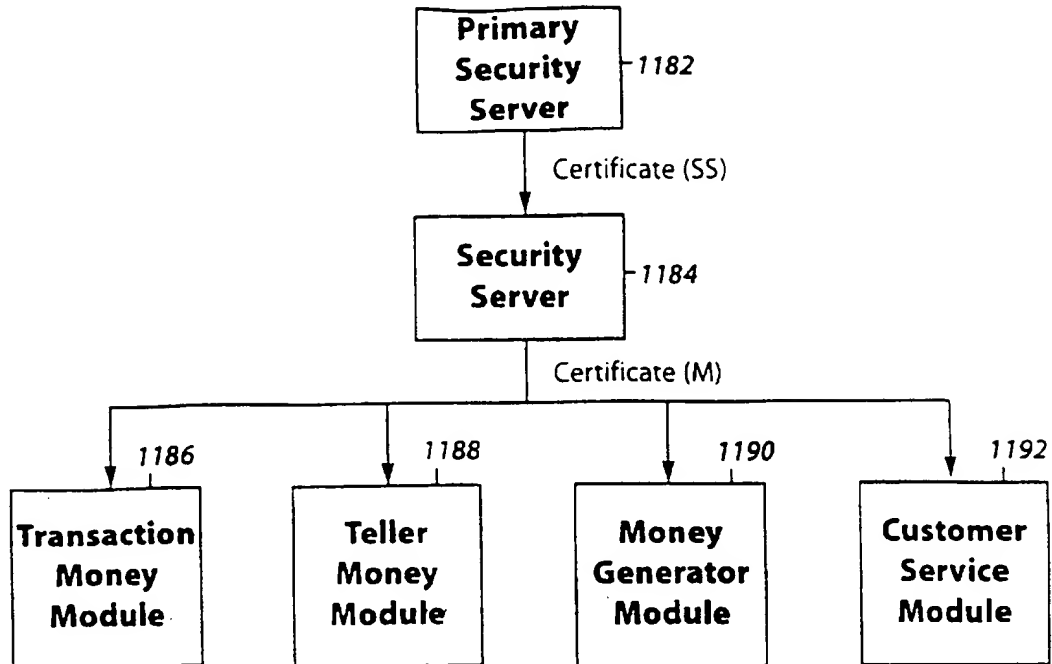


Figure 1A

Security Network Messaging

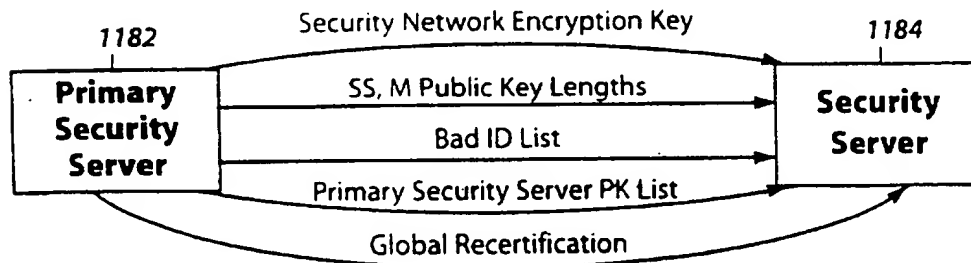


Figure 1B

Security Network

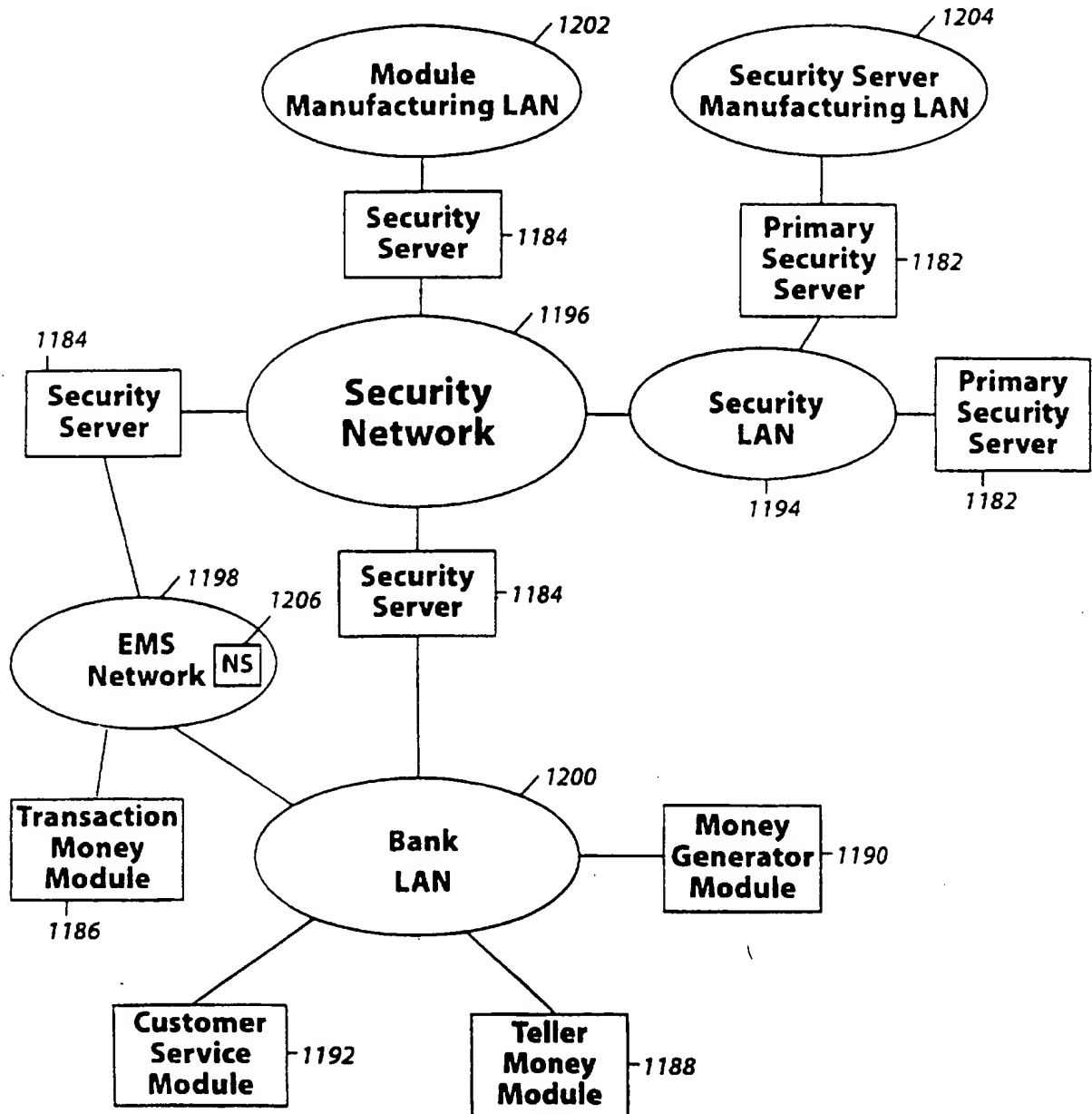


Figure 2

Security Server

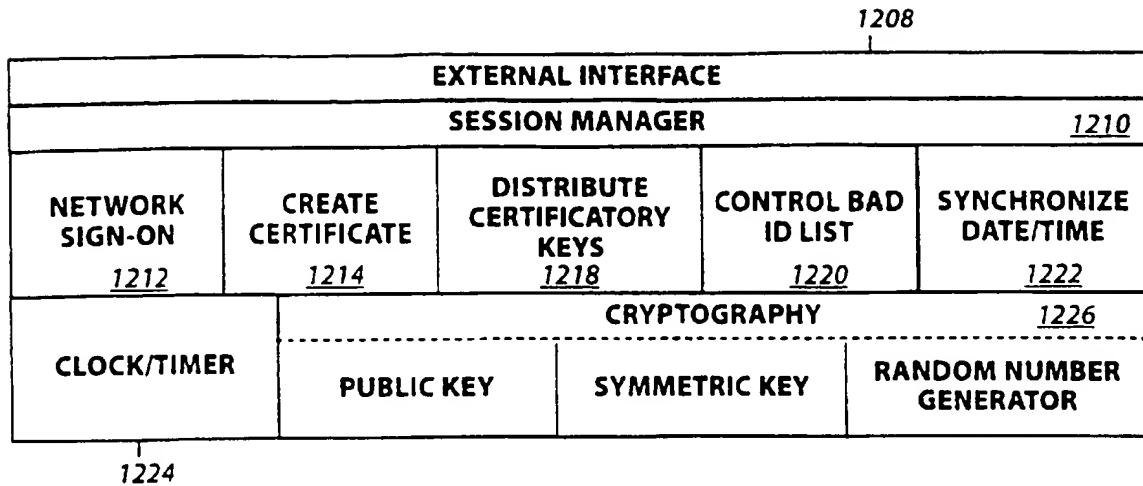


Figure 3A

Network Server

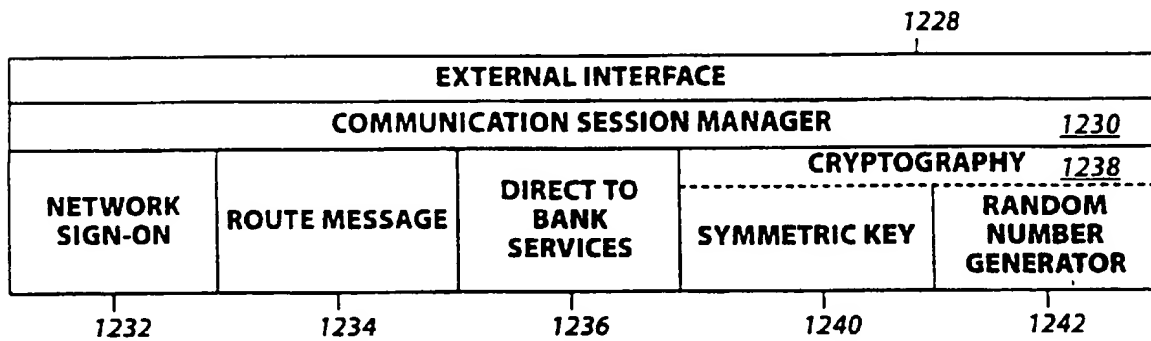


Figure 3B

Network Sign-On Overview

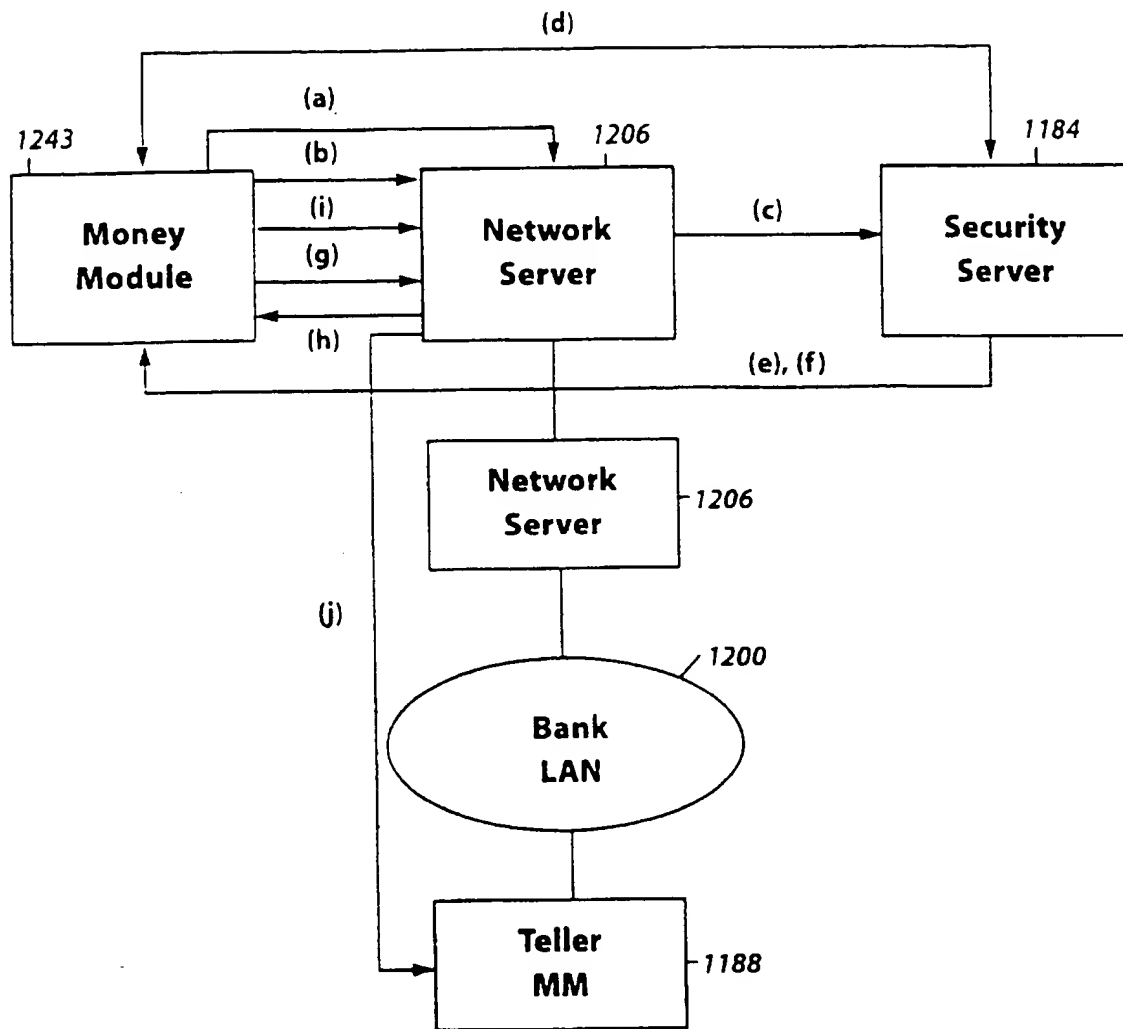


Figure 5

Network Sign-On

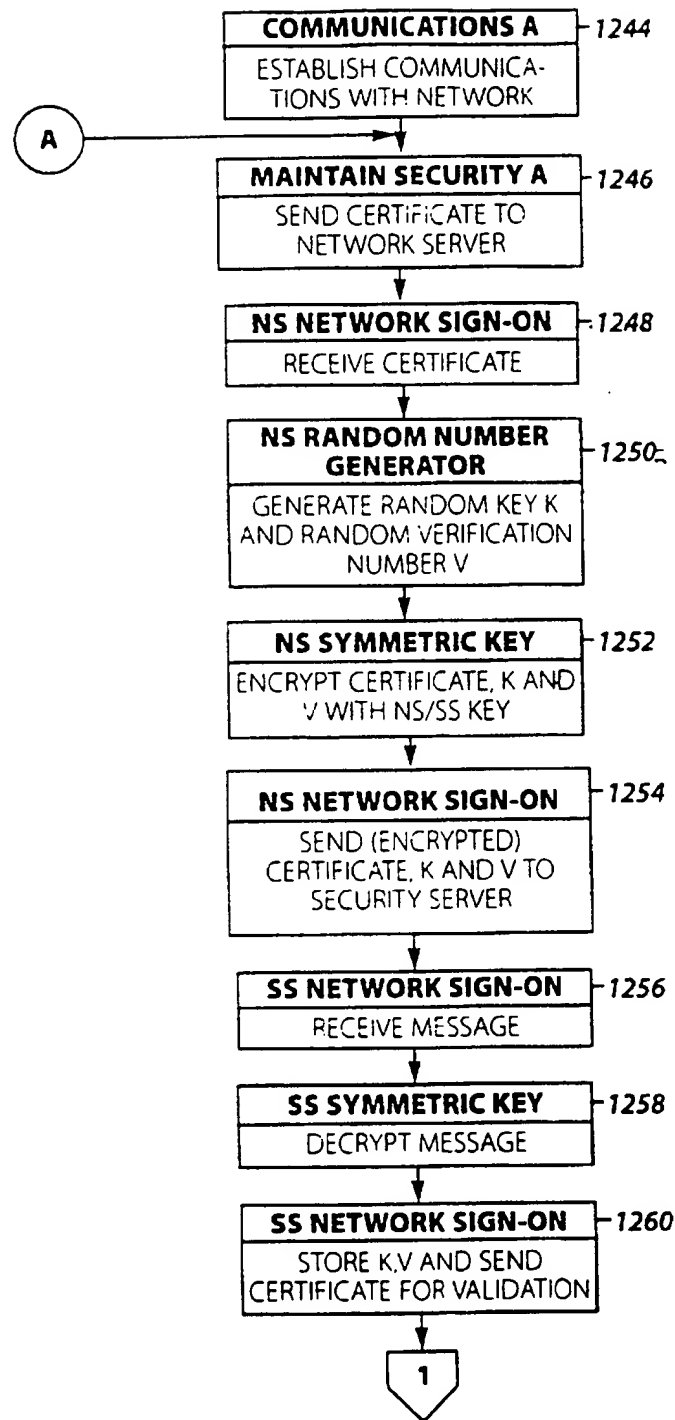
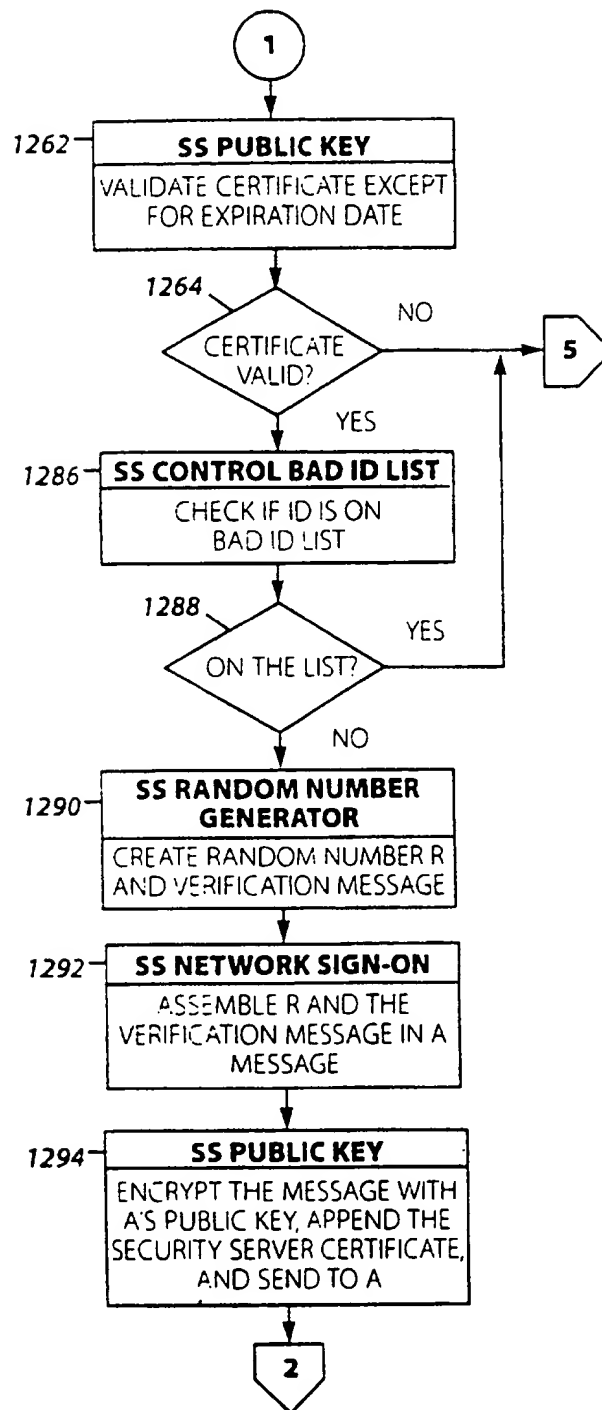


Figure 6A

Network Sign-On (C nt.)**Figure 6B**

Network Sign-On (Cont.)

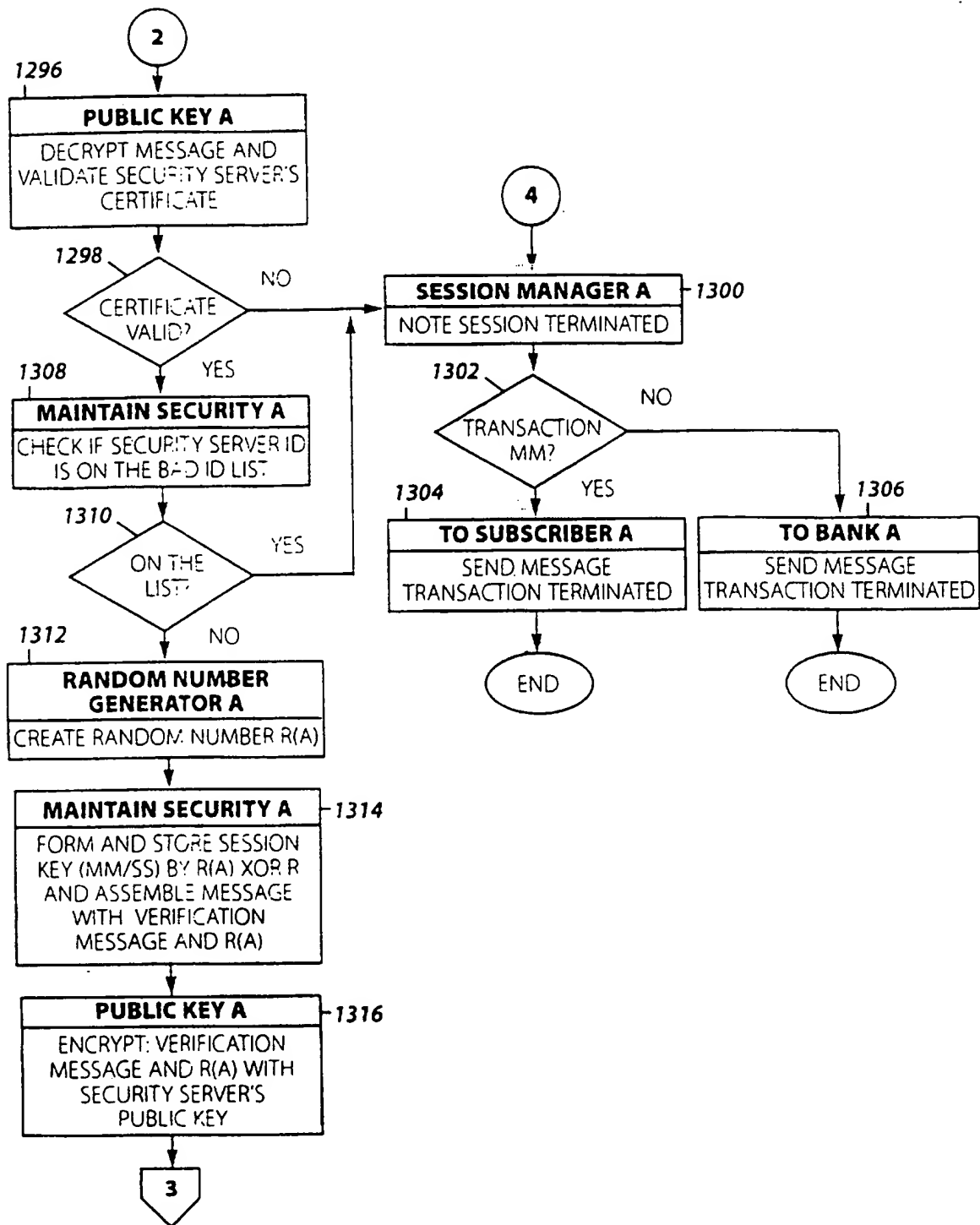
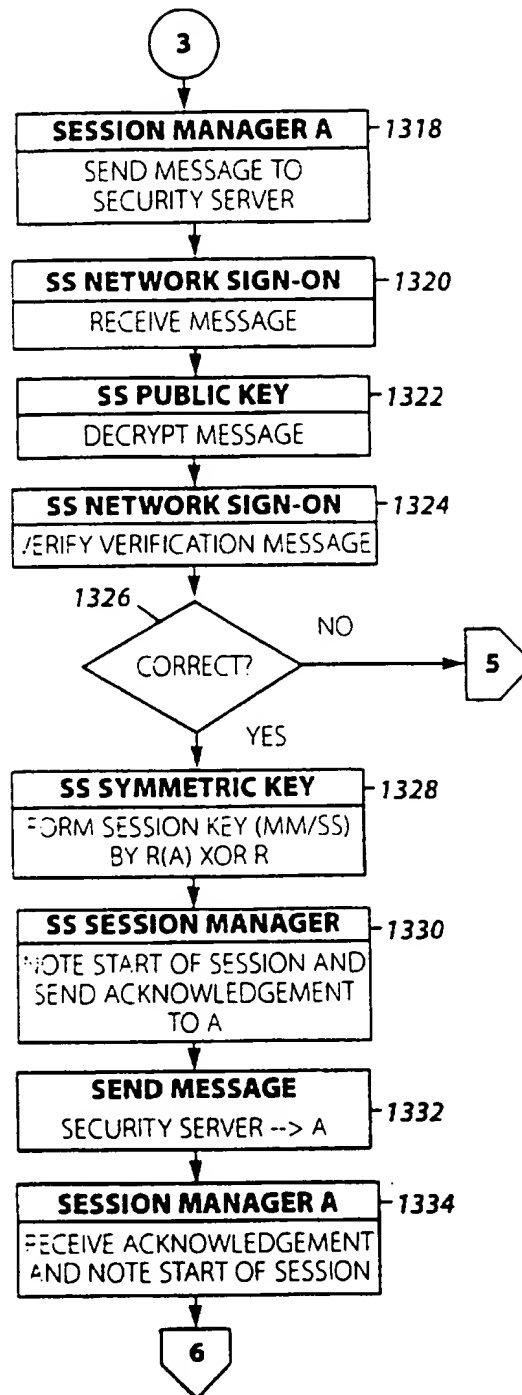
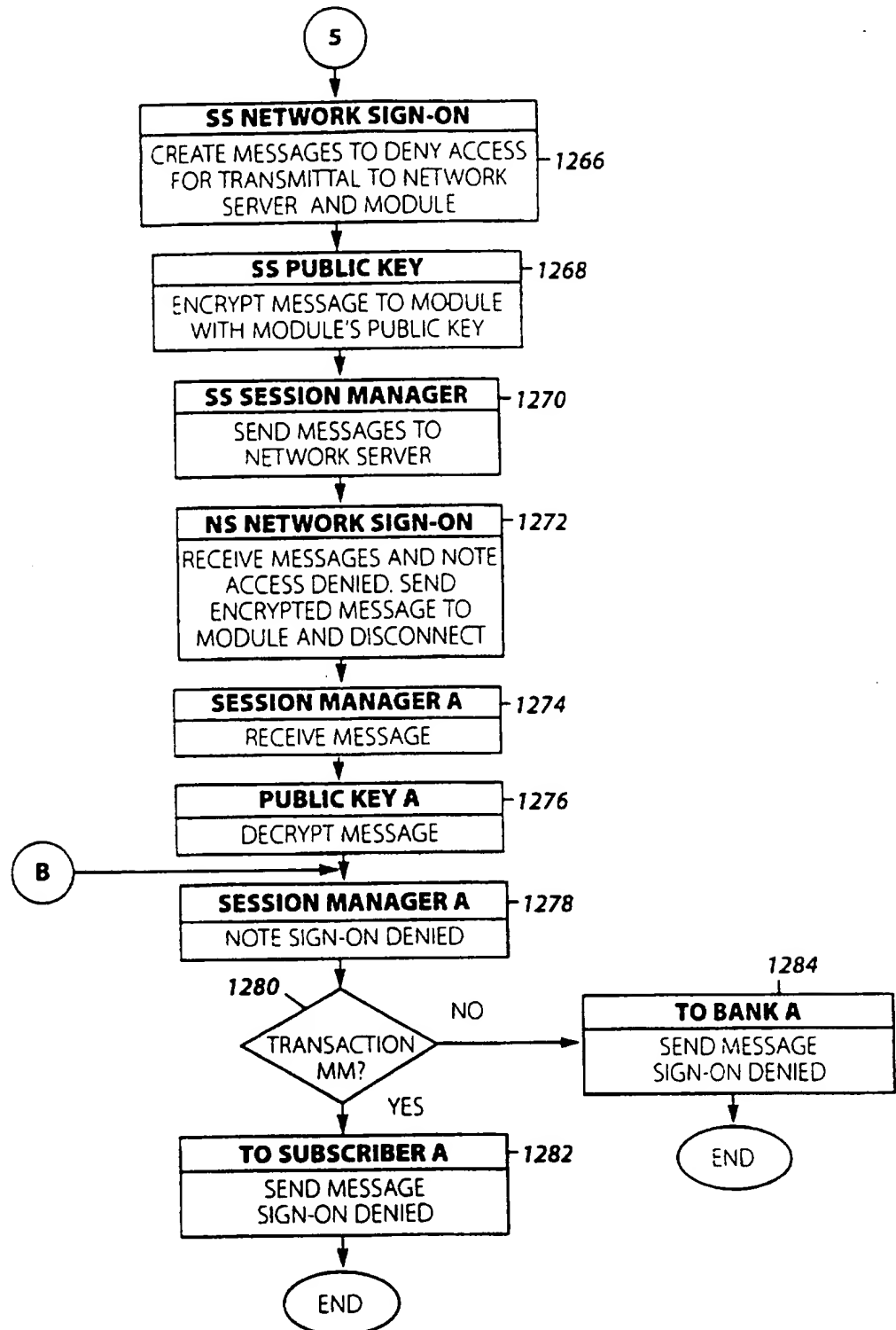


Figure 6C

Network Sign-On (Cont.)**Figure 6D**

Network Sign-On (Cont.)**Figure 6E**

Network Sign-On (Cont.)

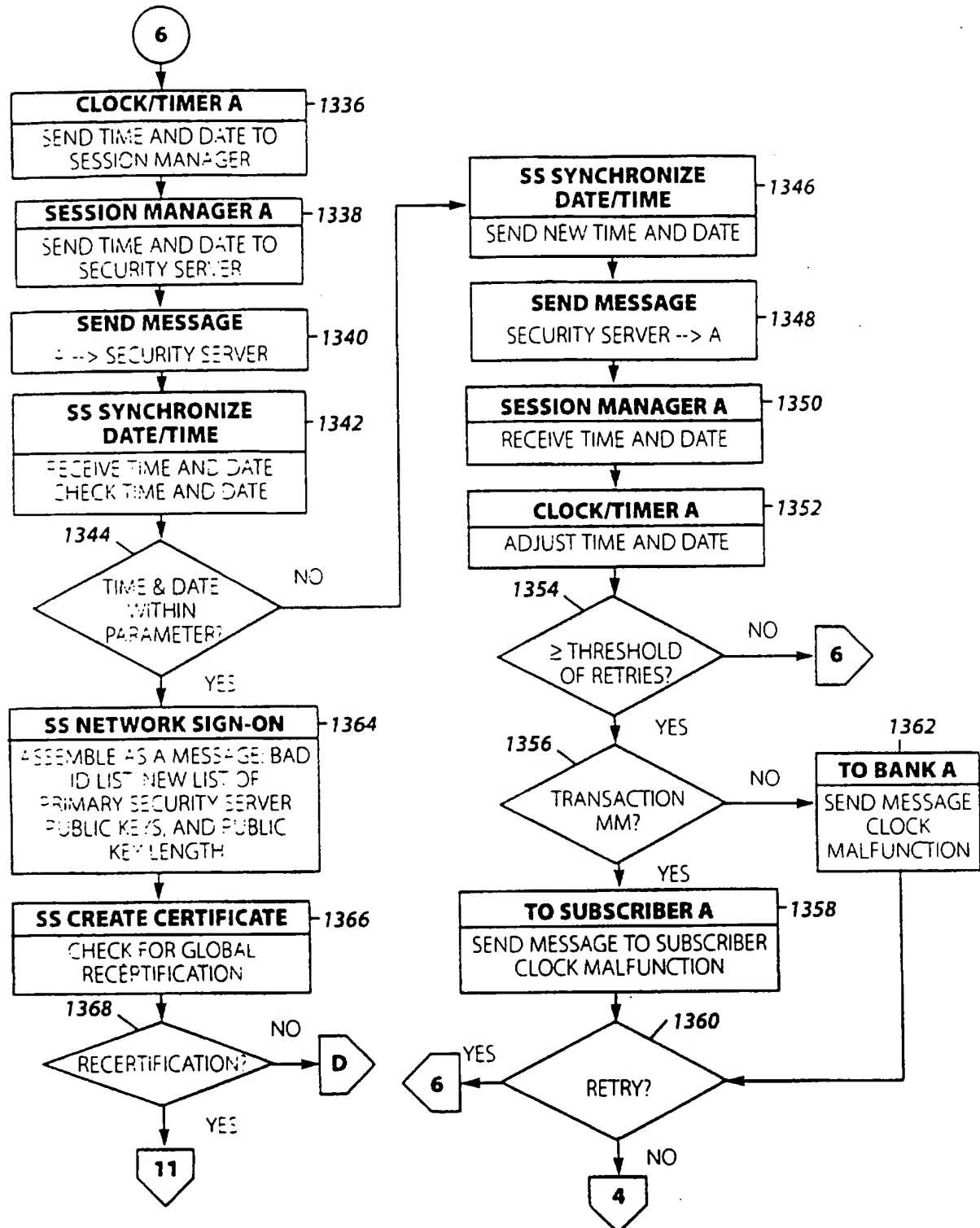


Figure 6F

Network Sign-On (Cont.)

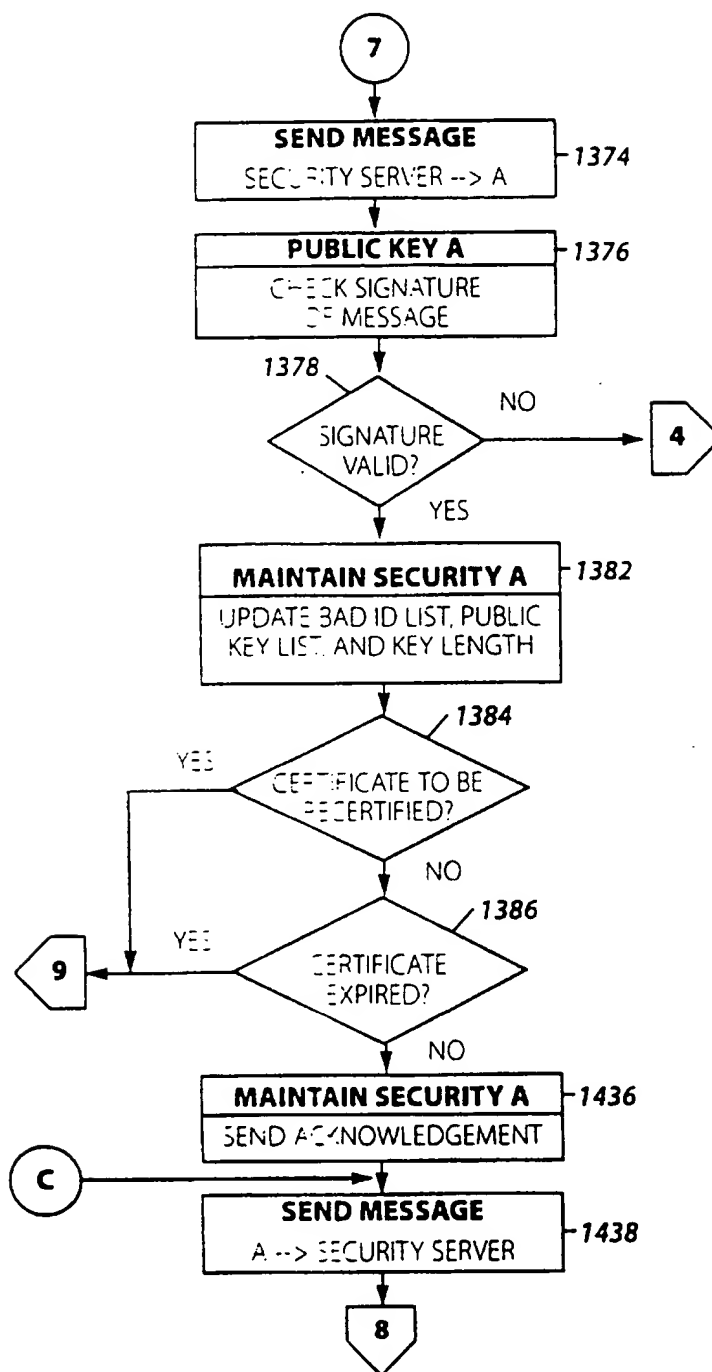
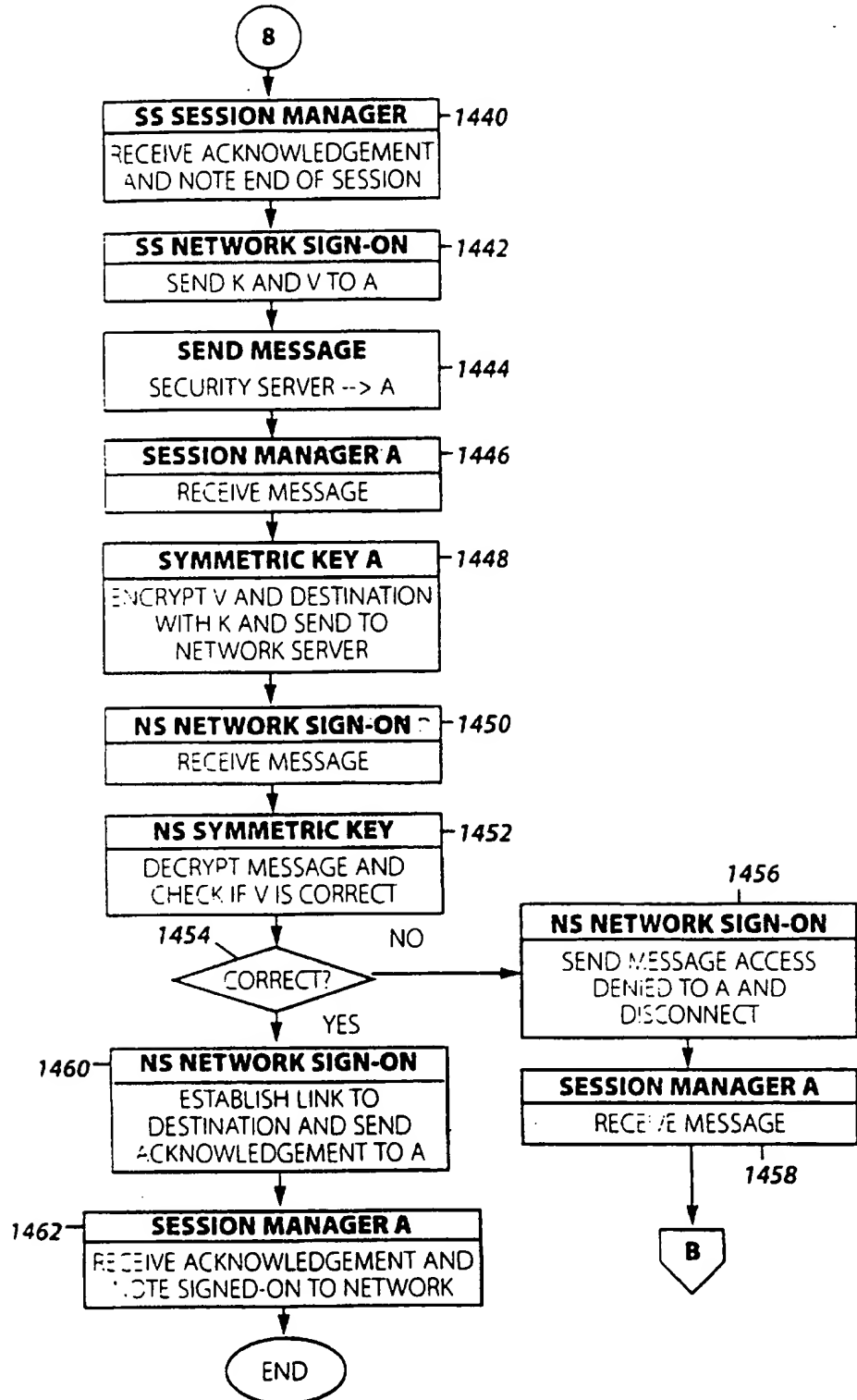
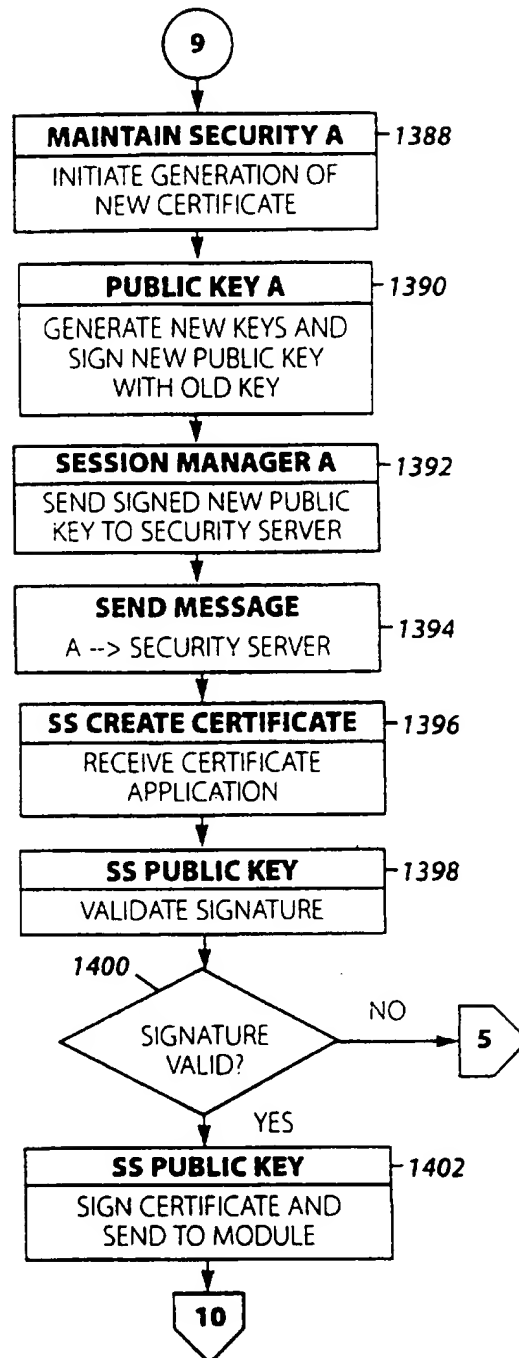
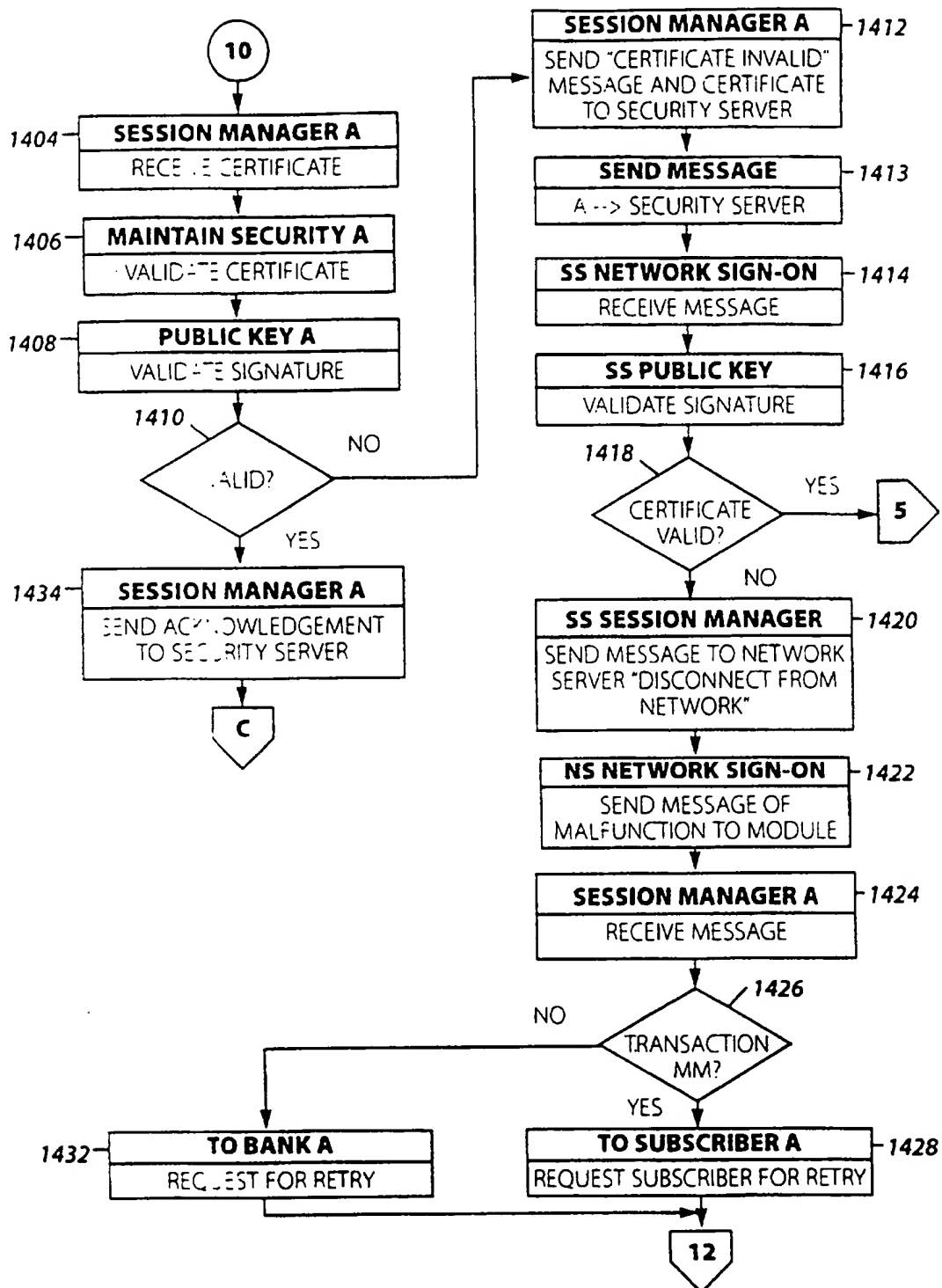
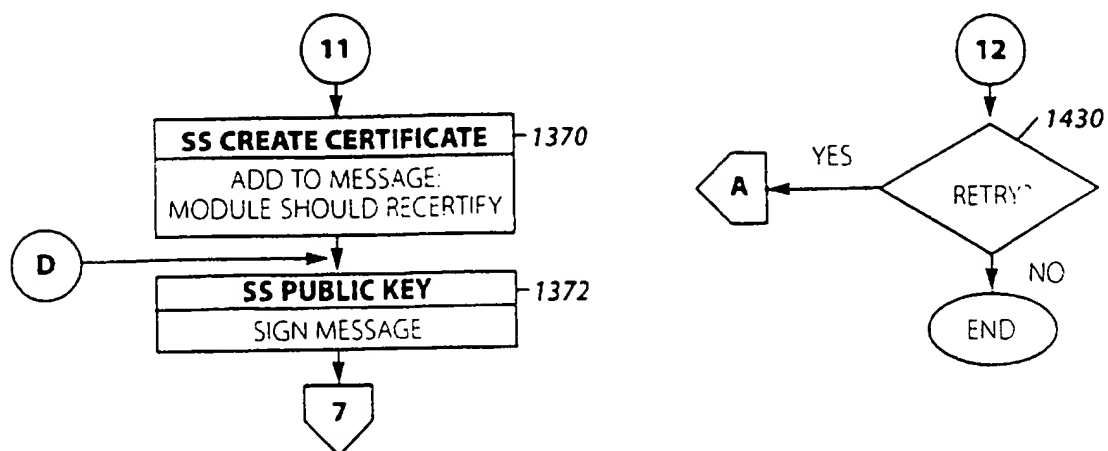


Figure 6G

Network Sign-On (Cont.)**Figure 6H**

Network Sign-On (Cont.)**Figure 6I**

Network Sign-On (C nt.)**Figure 6J**

Network Sign-On (Cont.)**Figure 6K**

Establish Session

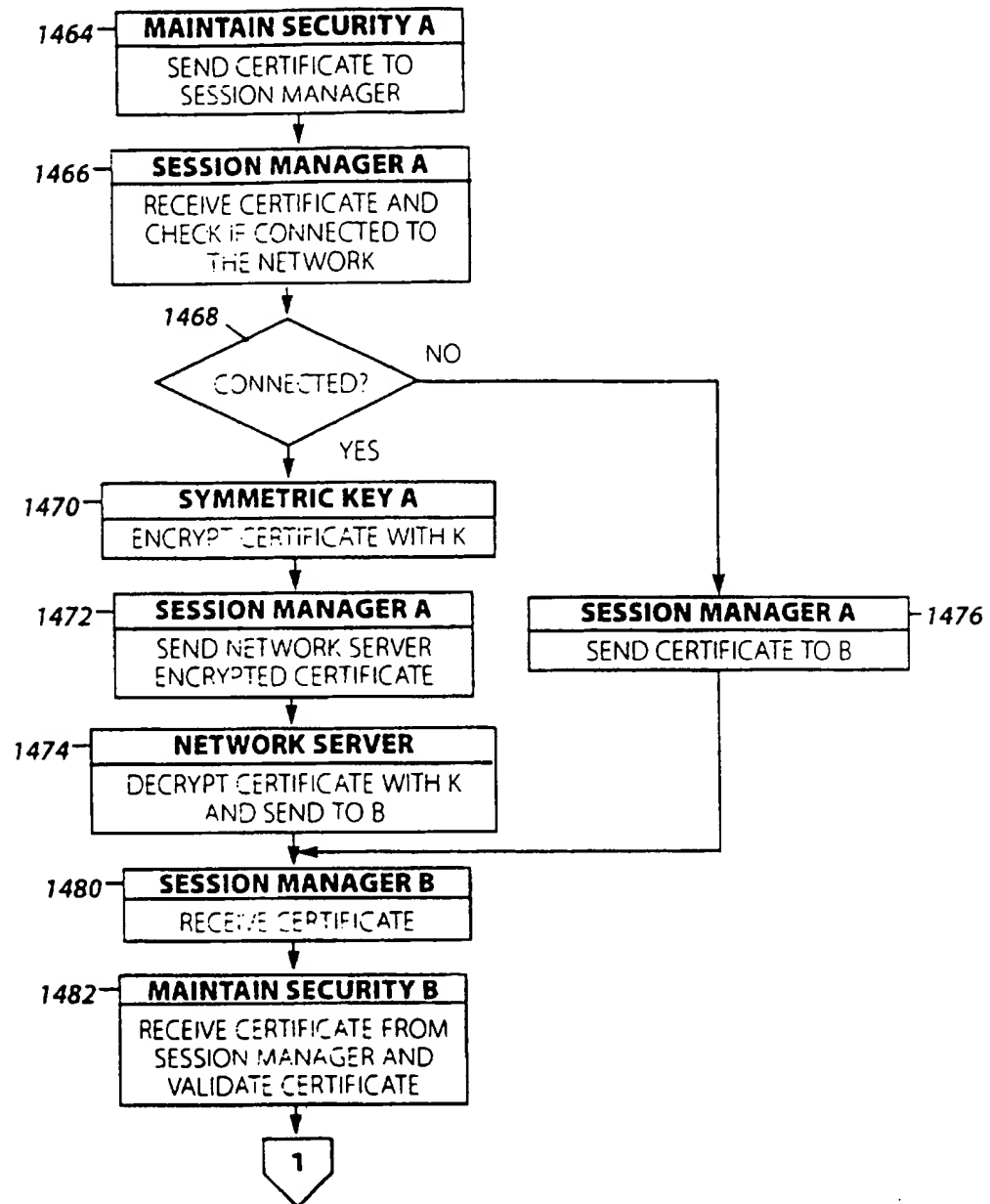
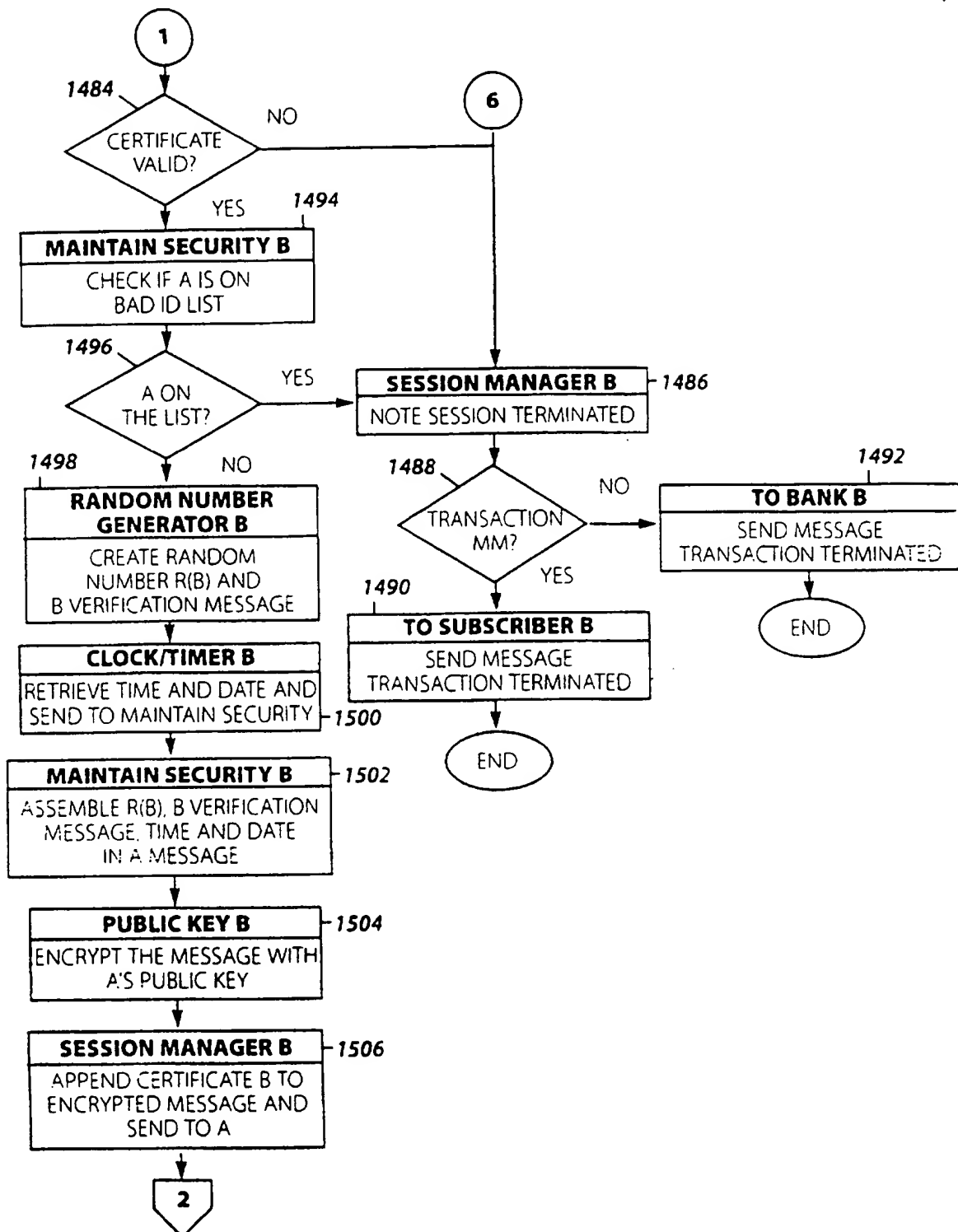
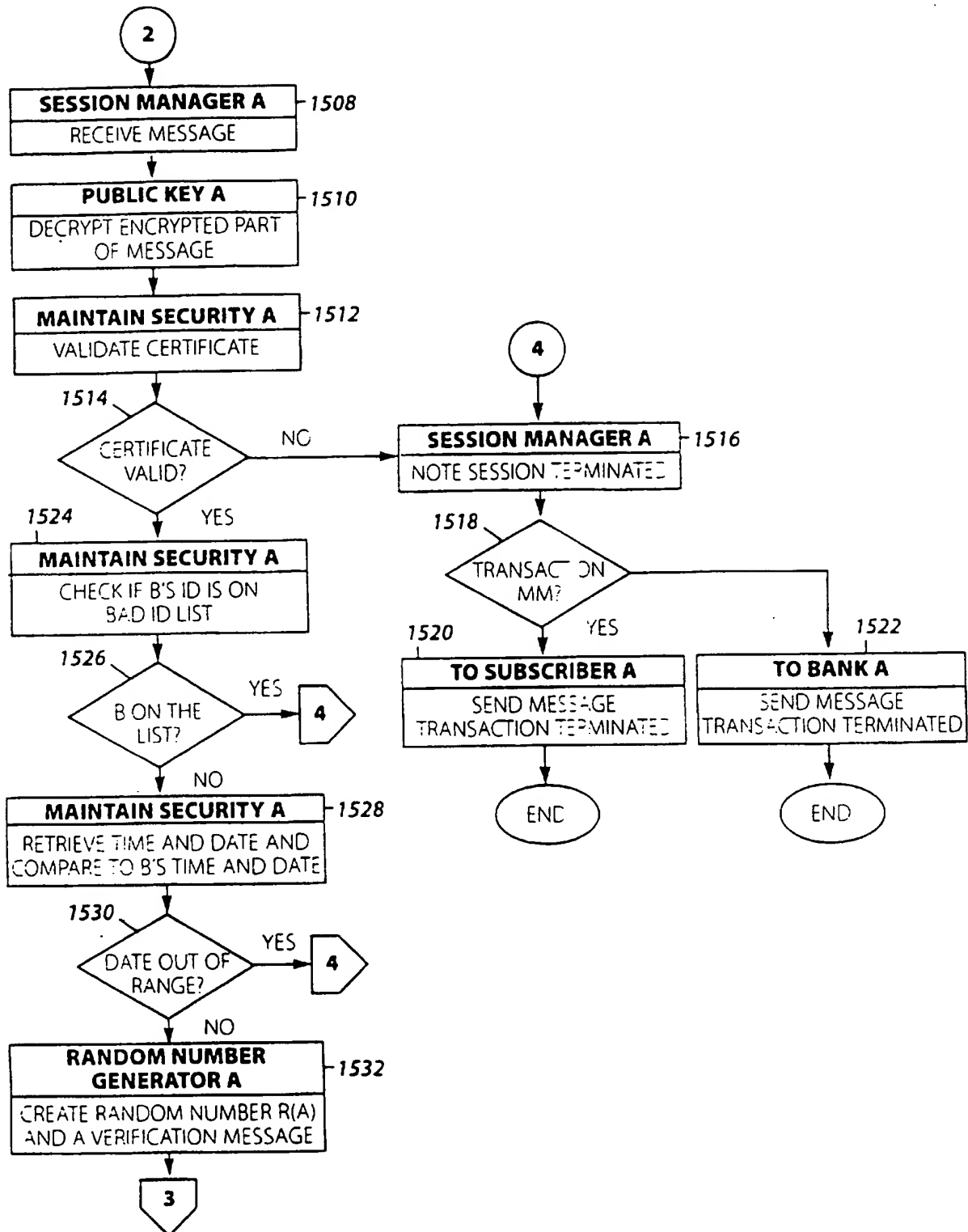
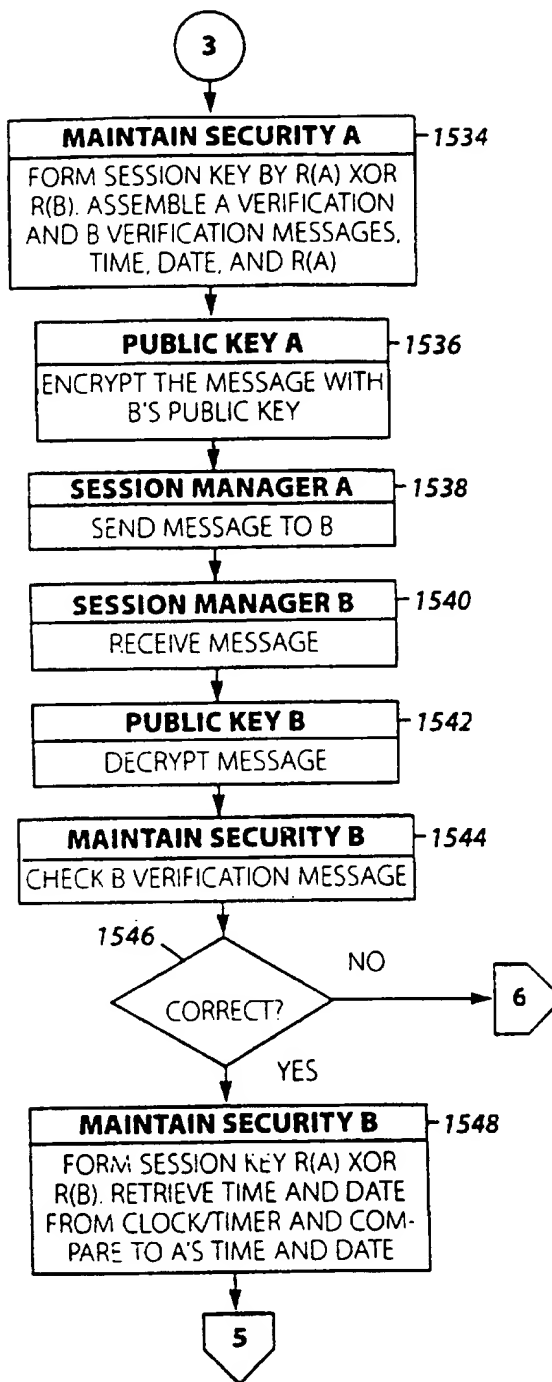
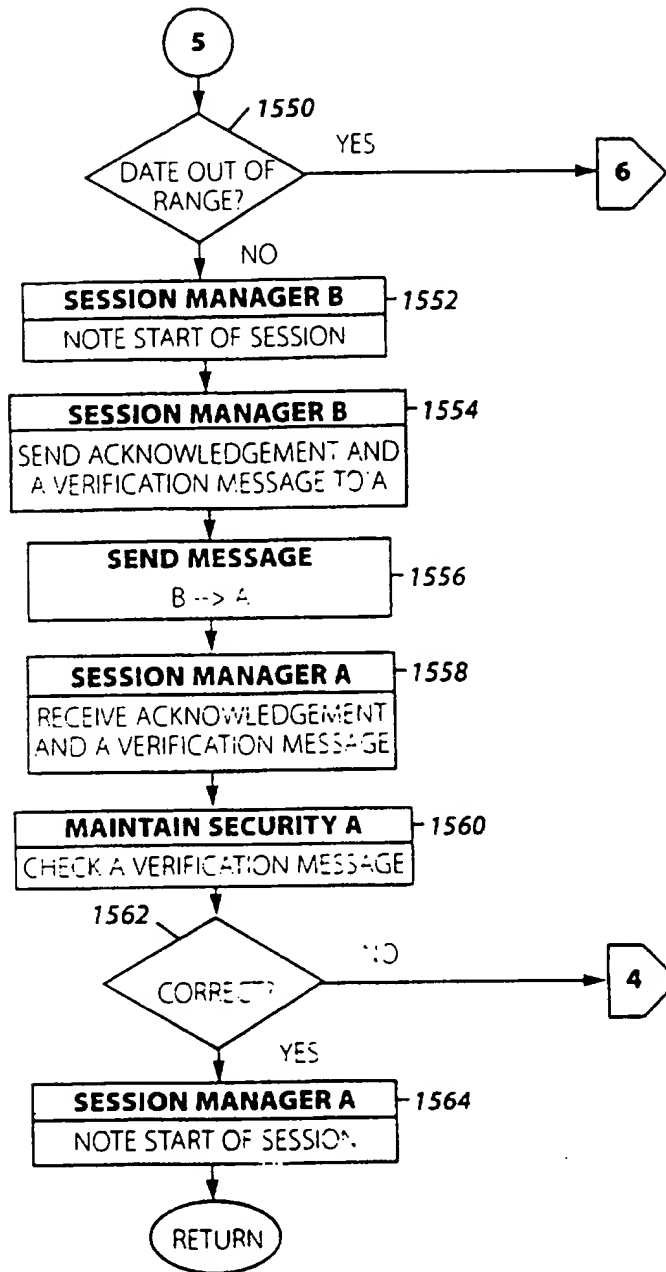


Figure 7A

Establish Session (Cont.)**Figure 7B**

Establish Session (Cont.)**Figure 7C**

Establish Session (Cont.)**Figure 7D**

Establish Session (Cont.)*Figure 7E*

Transfer Notes

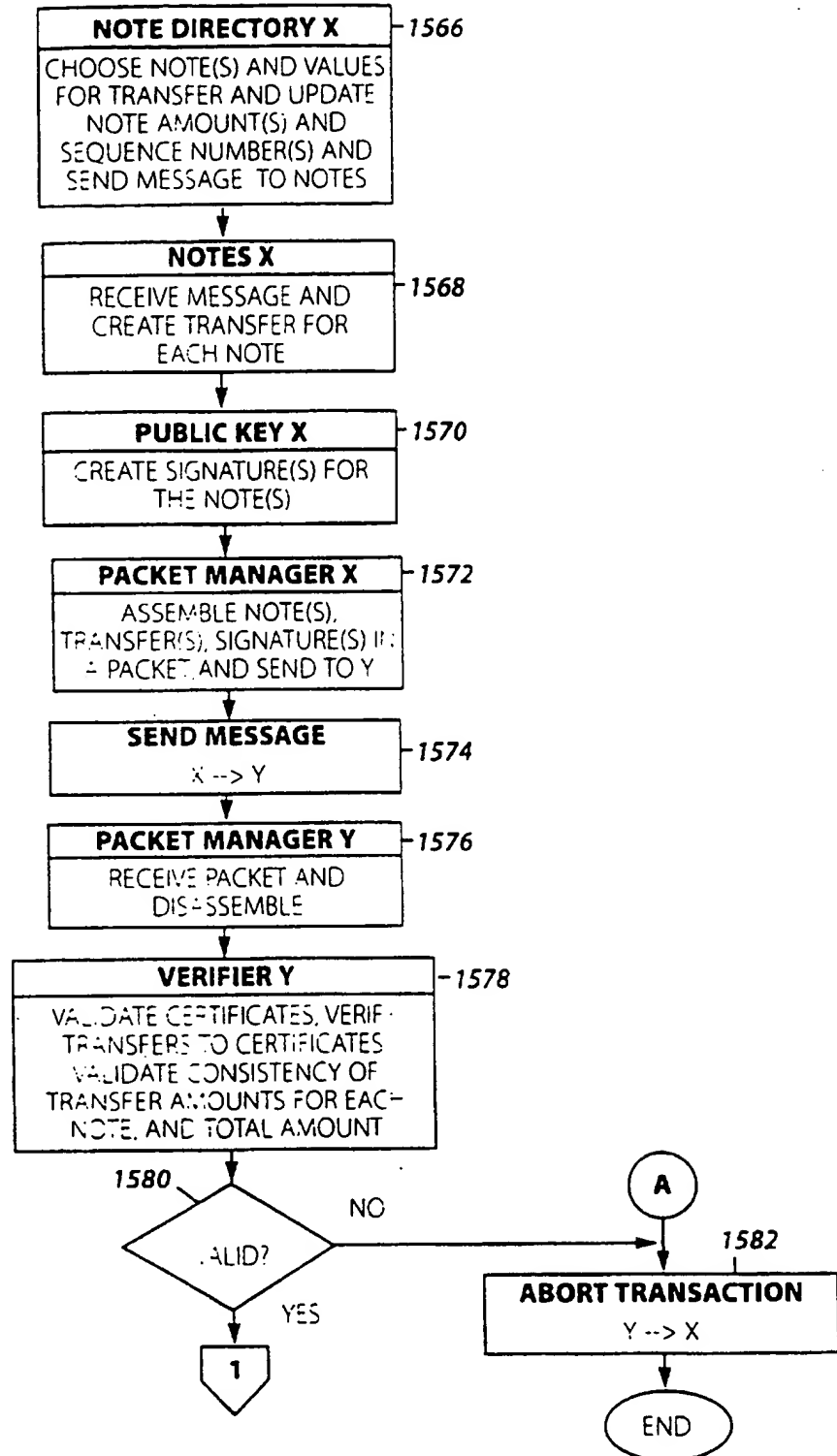
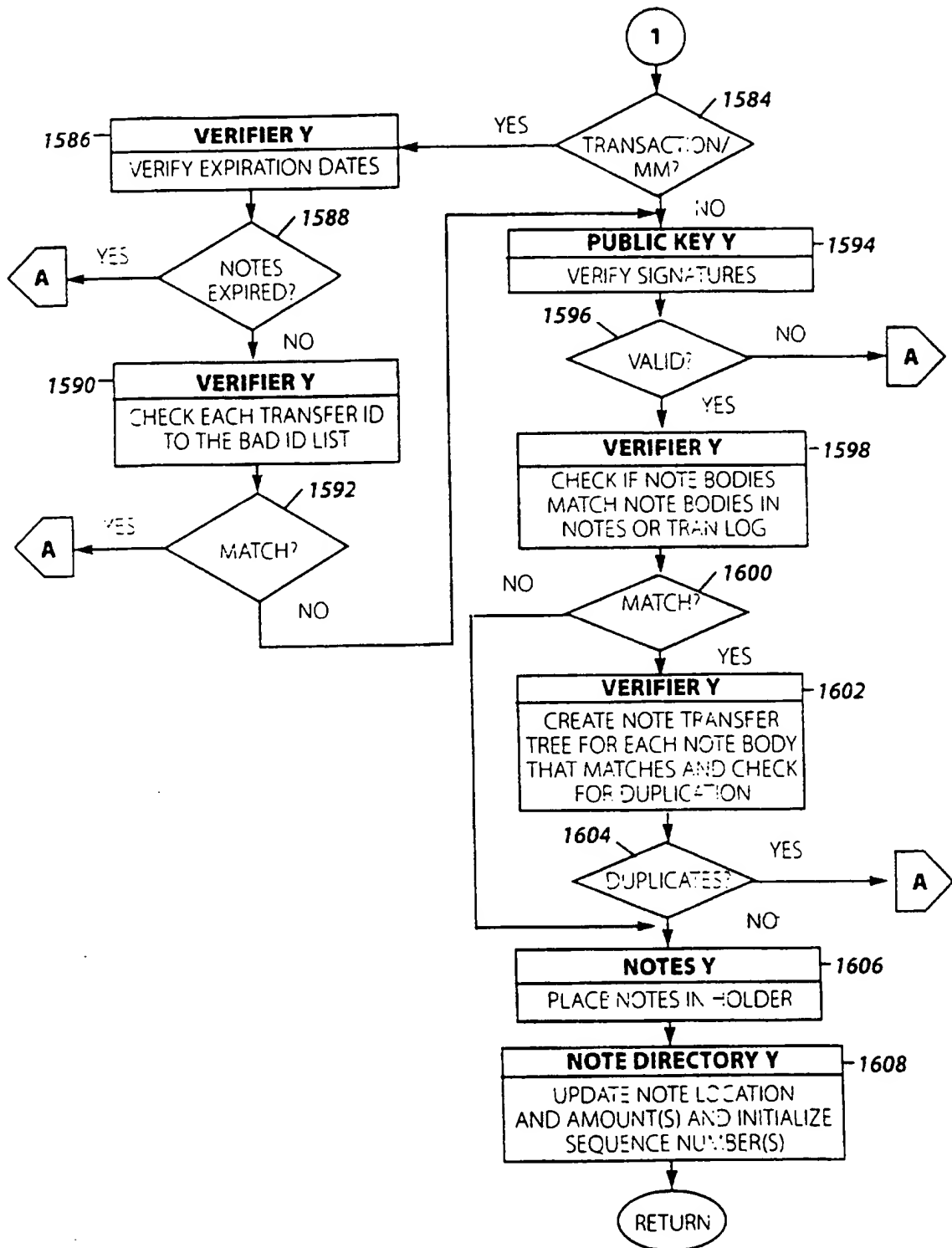


Figure 8A

Transfer Notes (Cont.)**Figure 8B**

Foreign Exchange

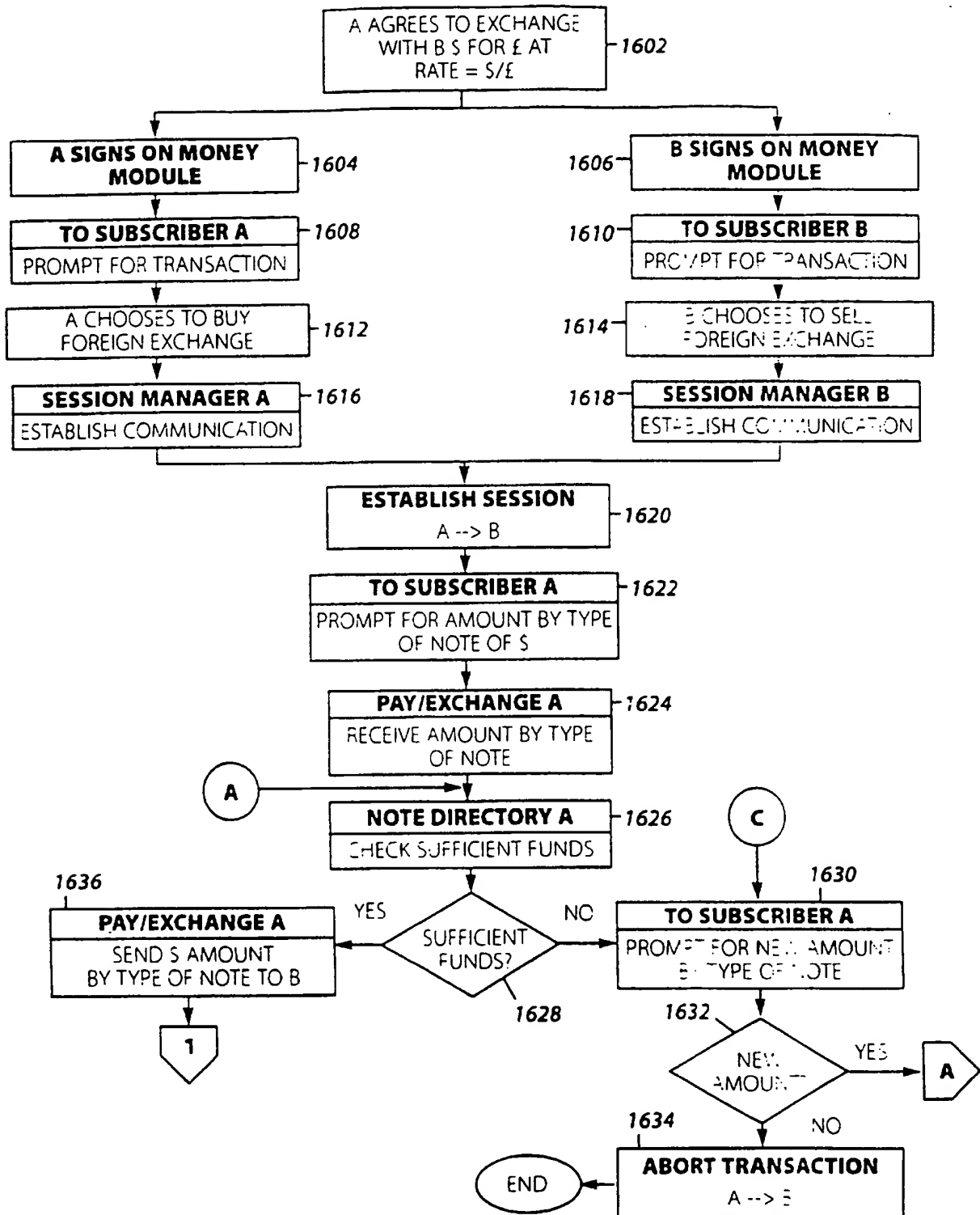
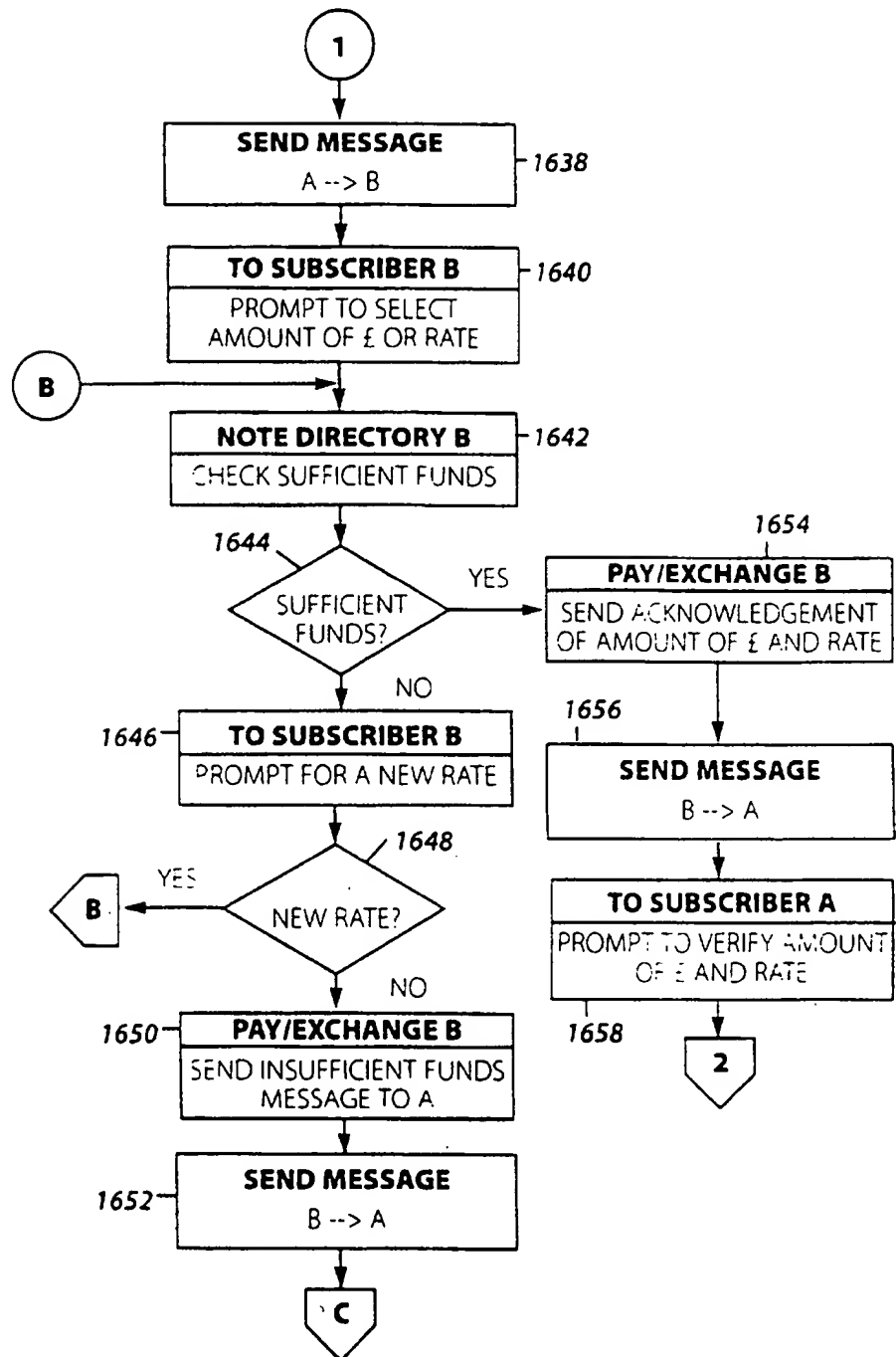
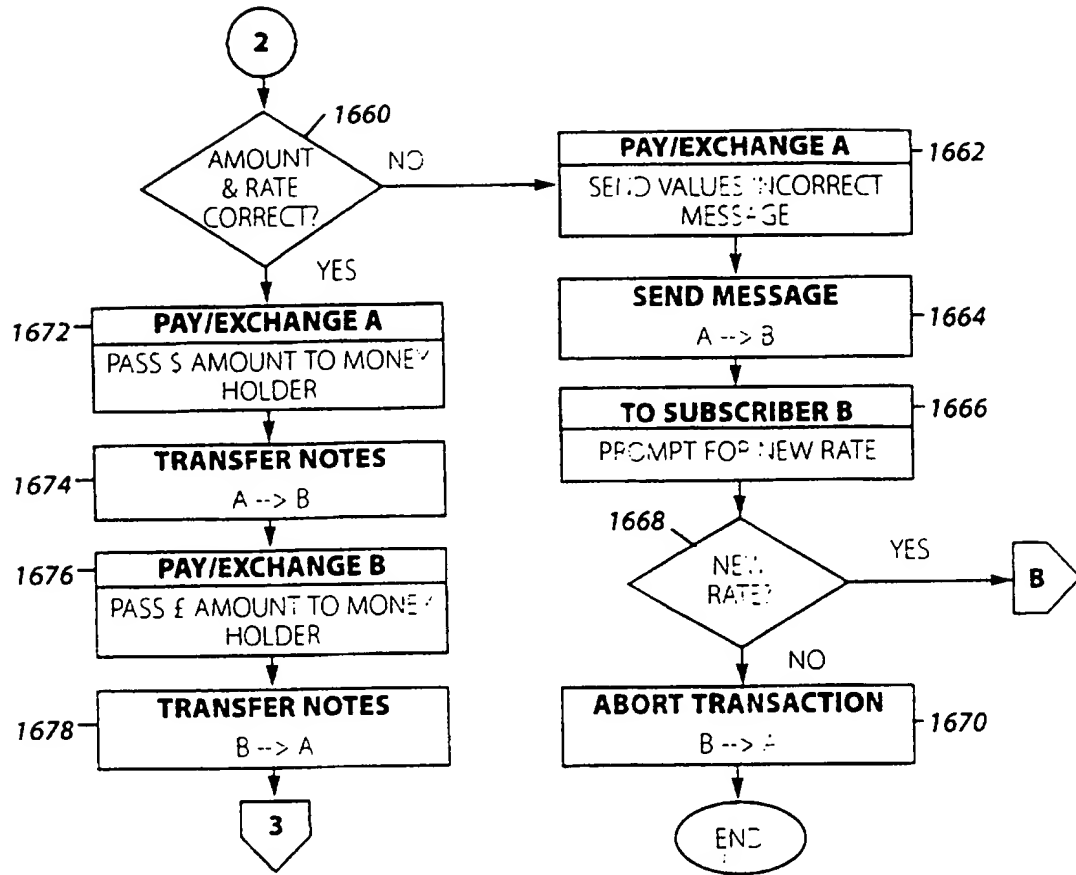
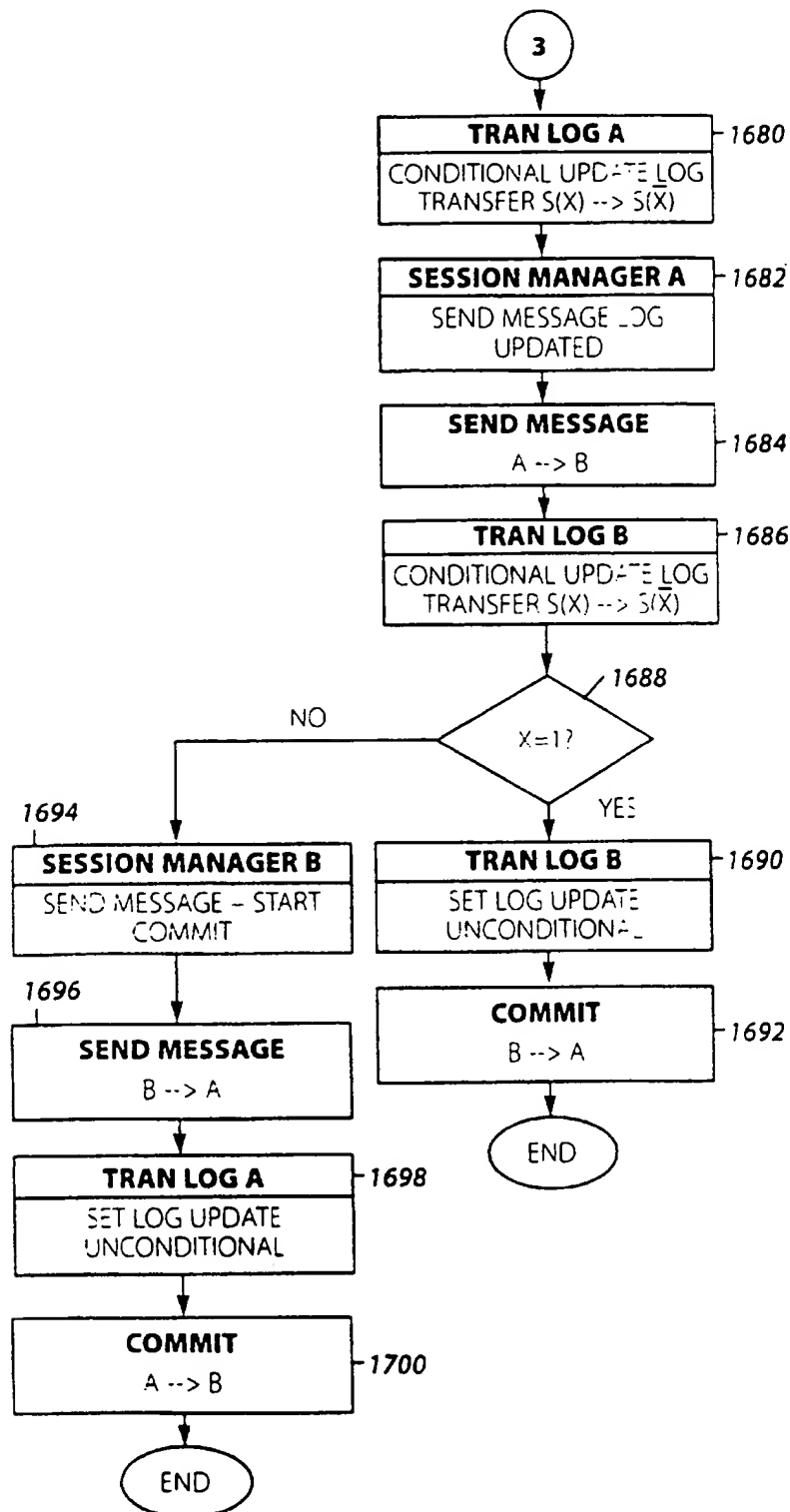


Figure 9A

Foreign Exchange (Cont.)**Figure 9B**

F reighn Exchange (Cont.)*Figure 9C*

Foreign Exchange (Cont.)**Figure 9D**

Commit

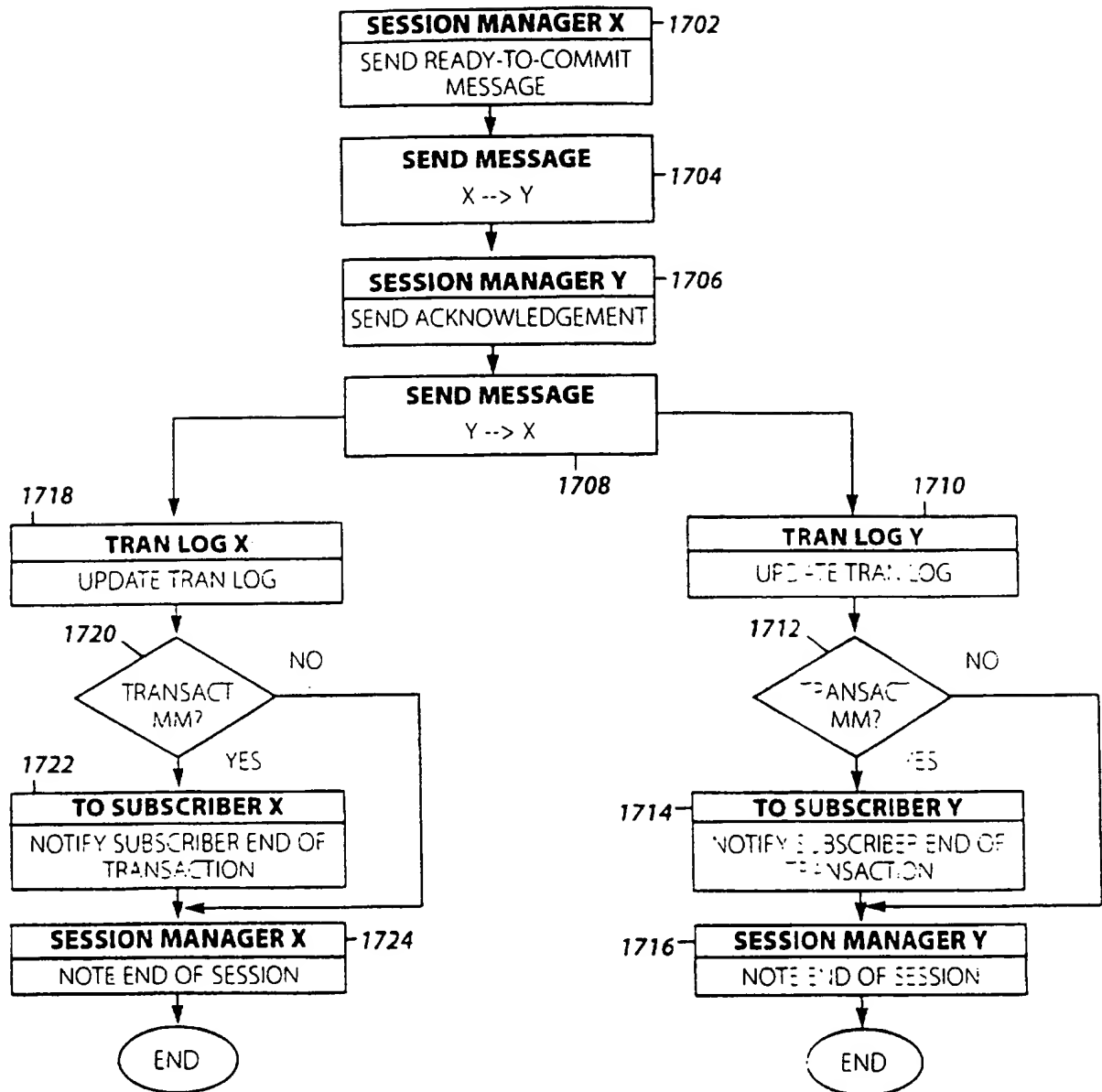
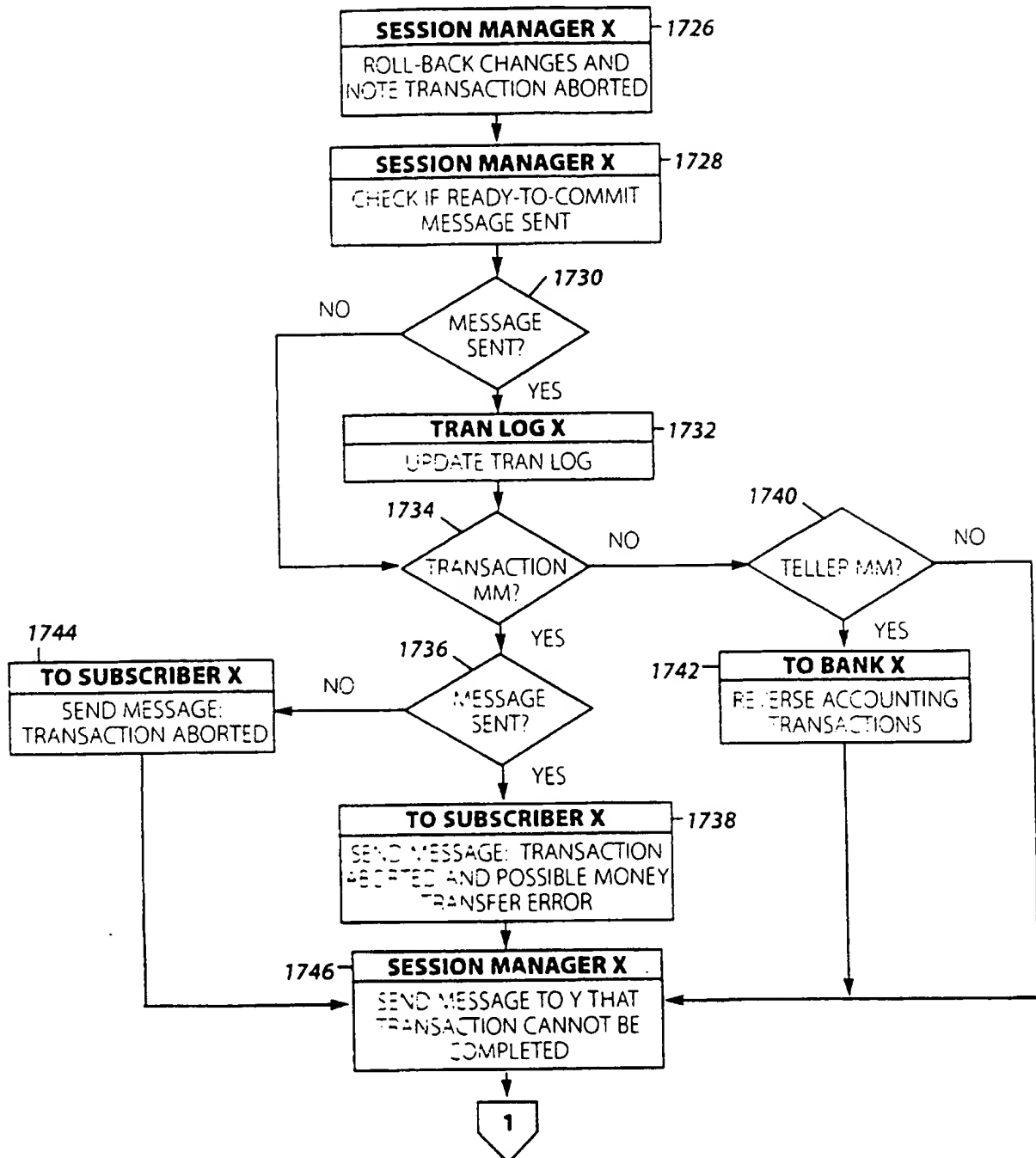
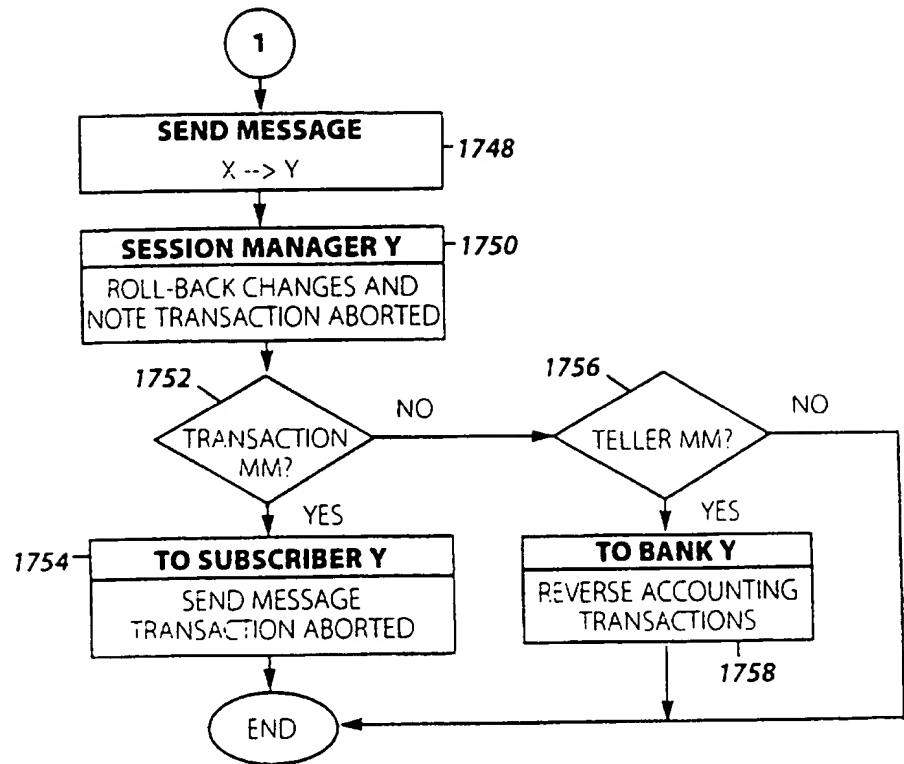


Figure 10

Abort Transaction**Figure 11A**

Abort Transaction (Cont.)**Figure 11B**

POS Payment

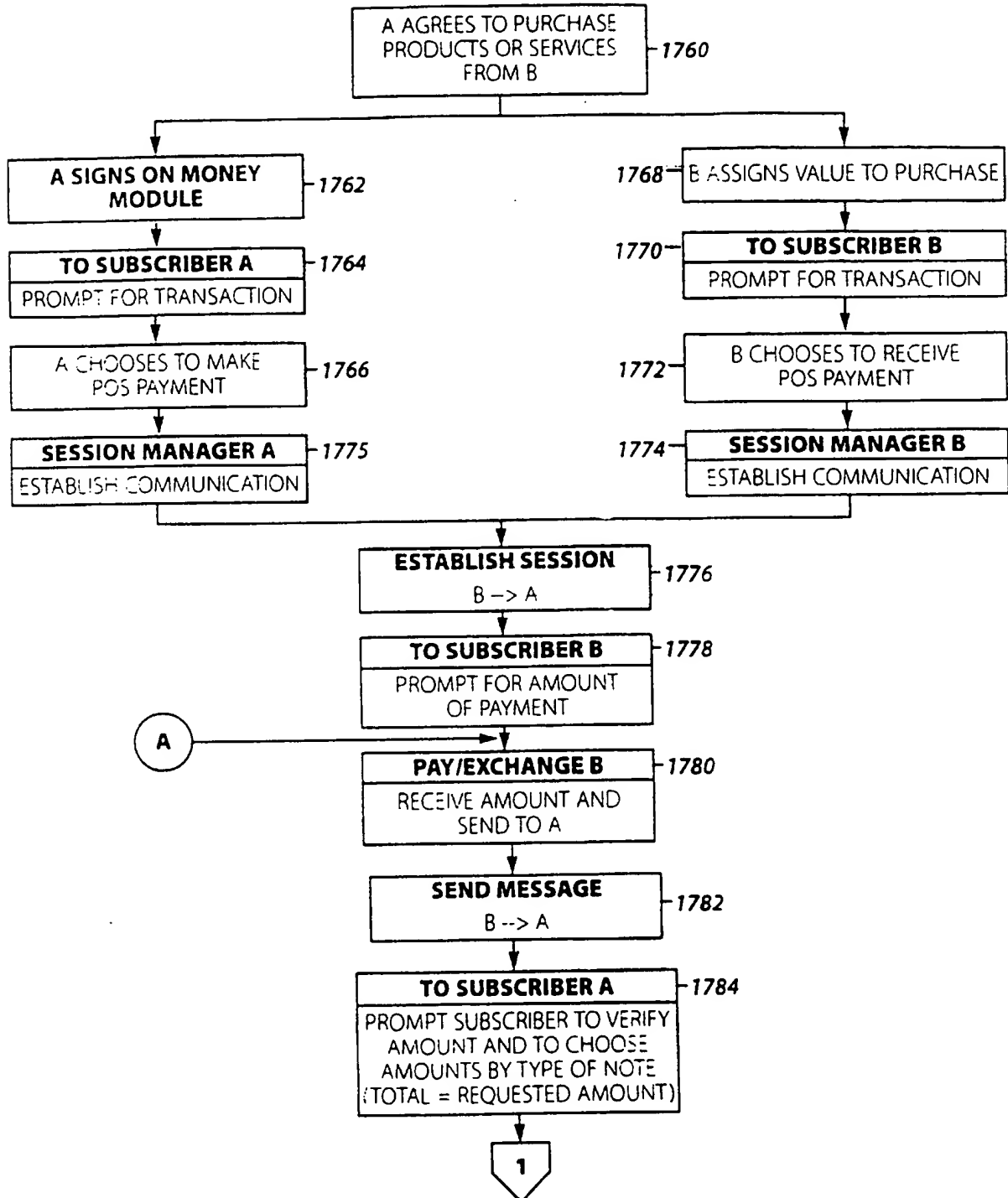
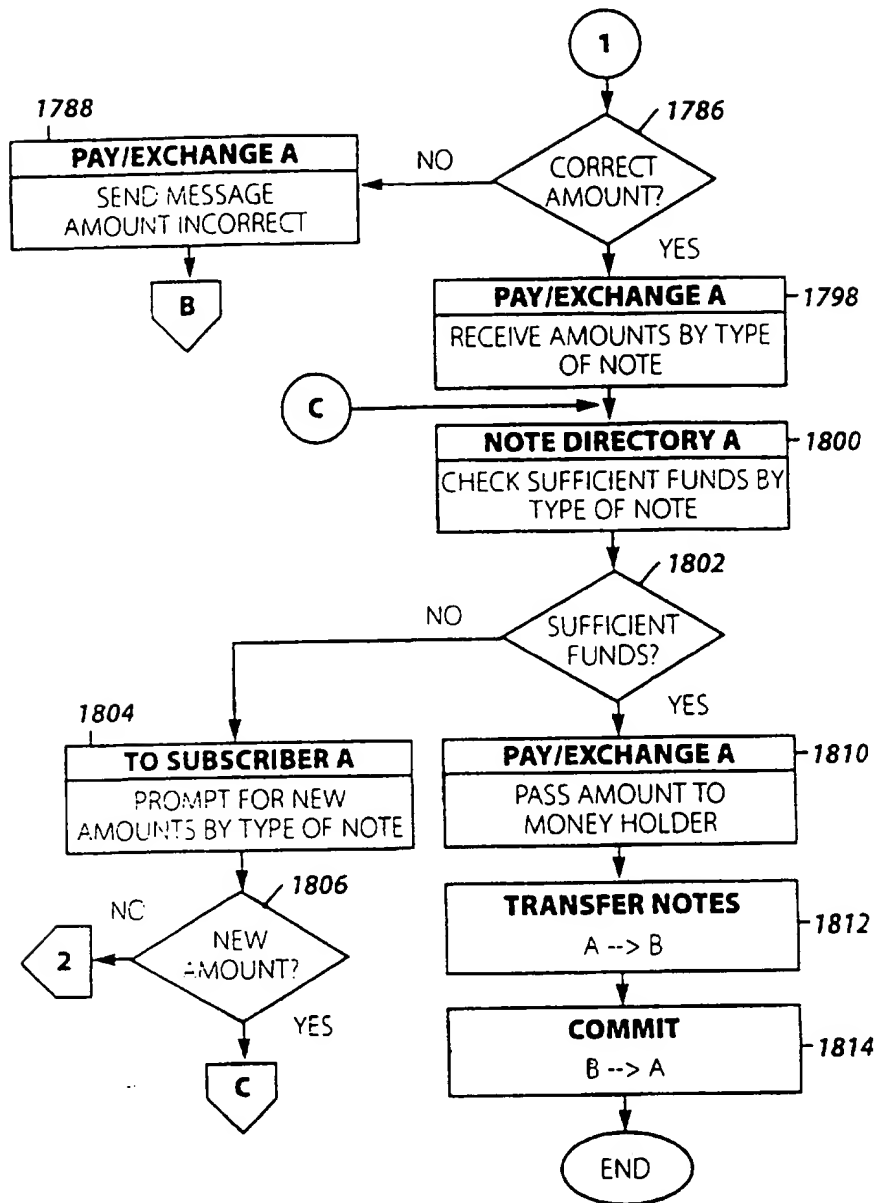
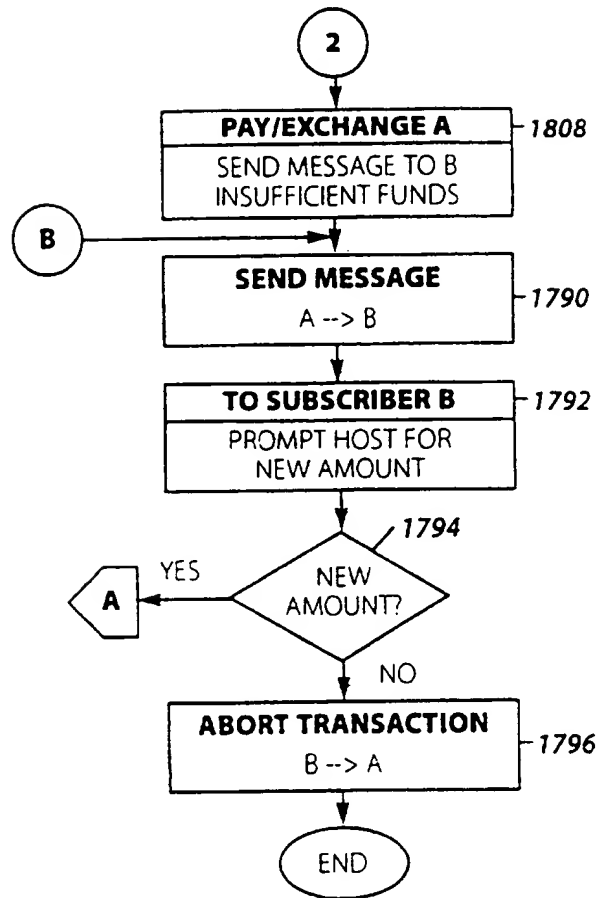


Figure 12A

POS Payment (C nt.)**Figure 12B**

POS Payment (C nt.)**Figure 12C**

Update Credit from Issuing Bank

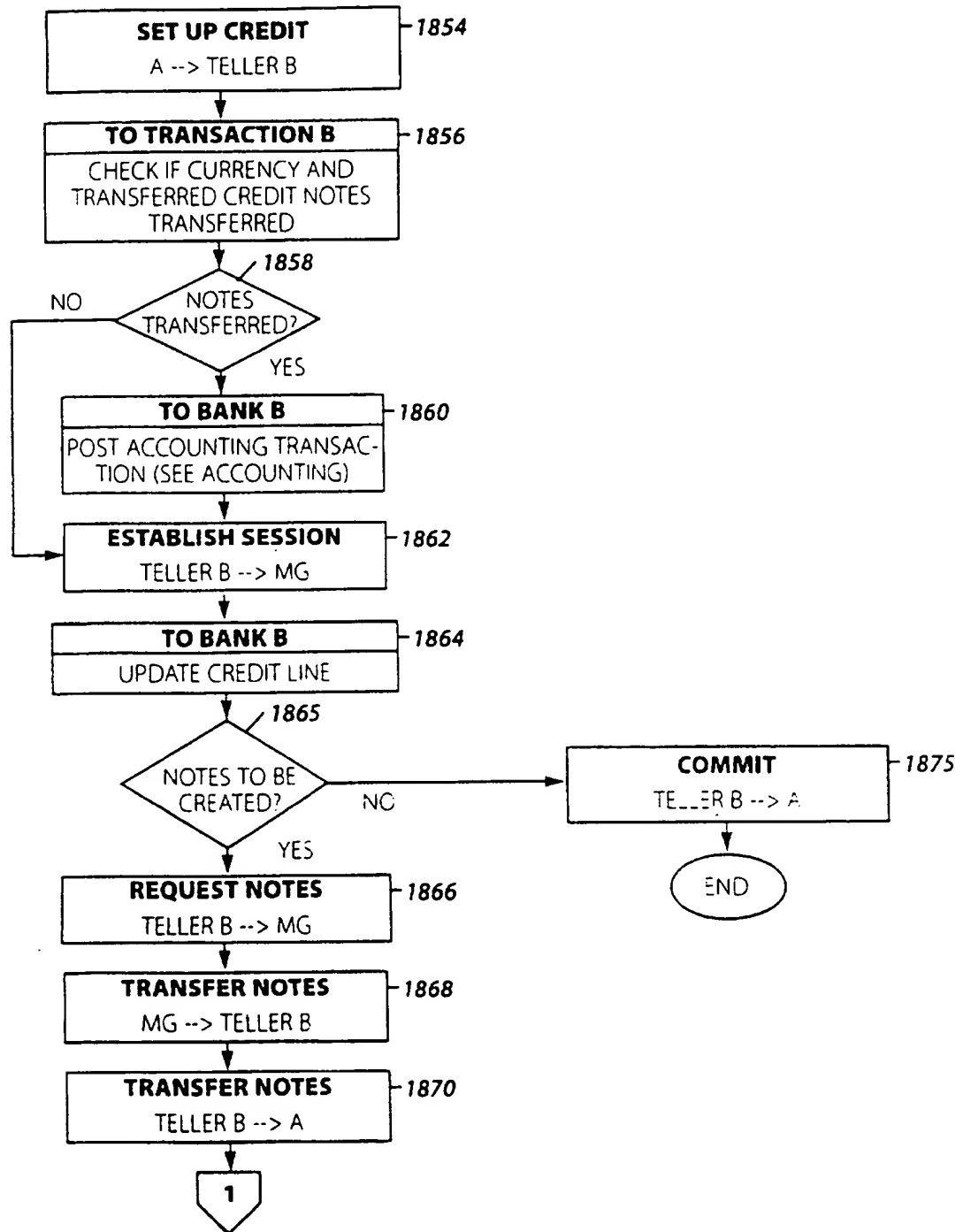
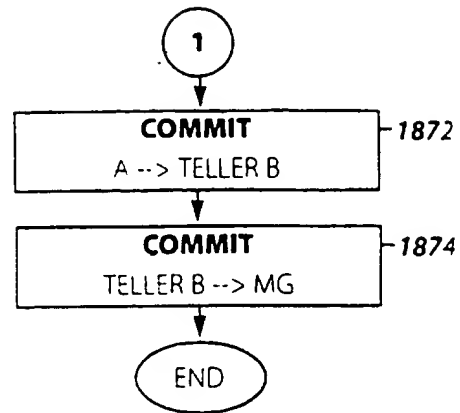


Figure 13A

Update Credit from Issuing Bank (Cont.)**Figure 13B**

Setup Credit

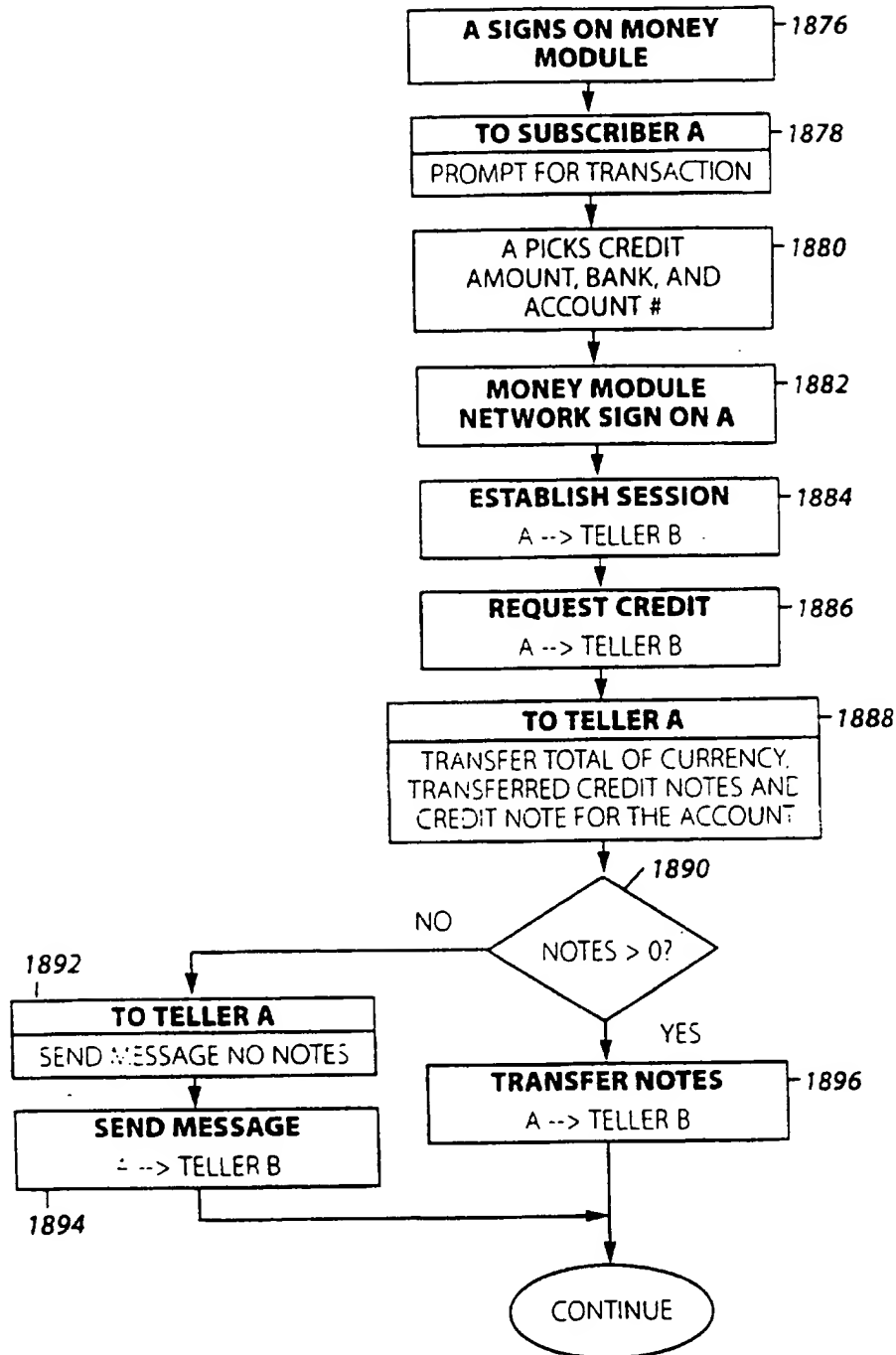


Figure 14

Request Credit

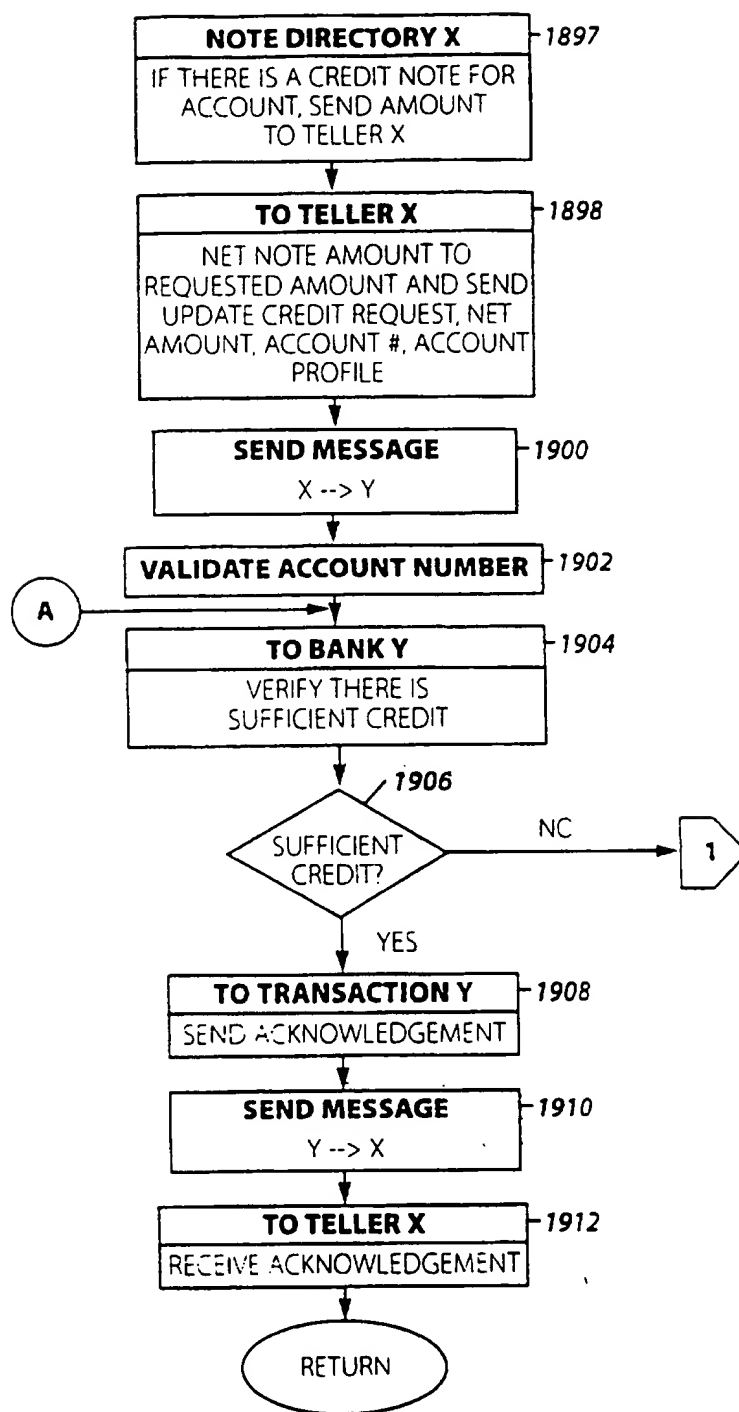
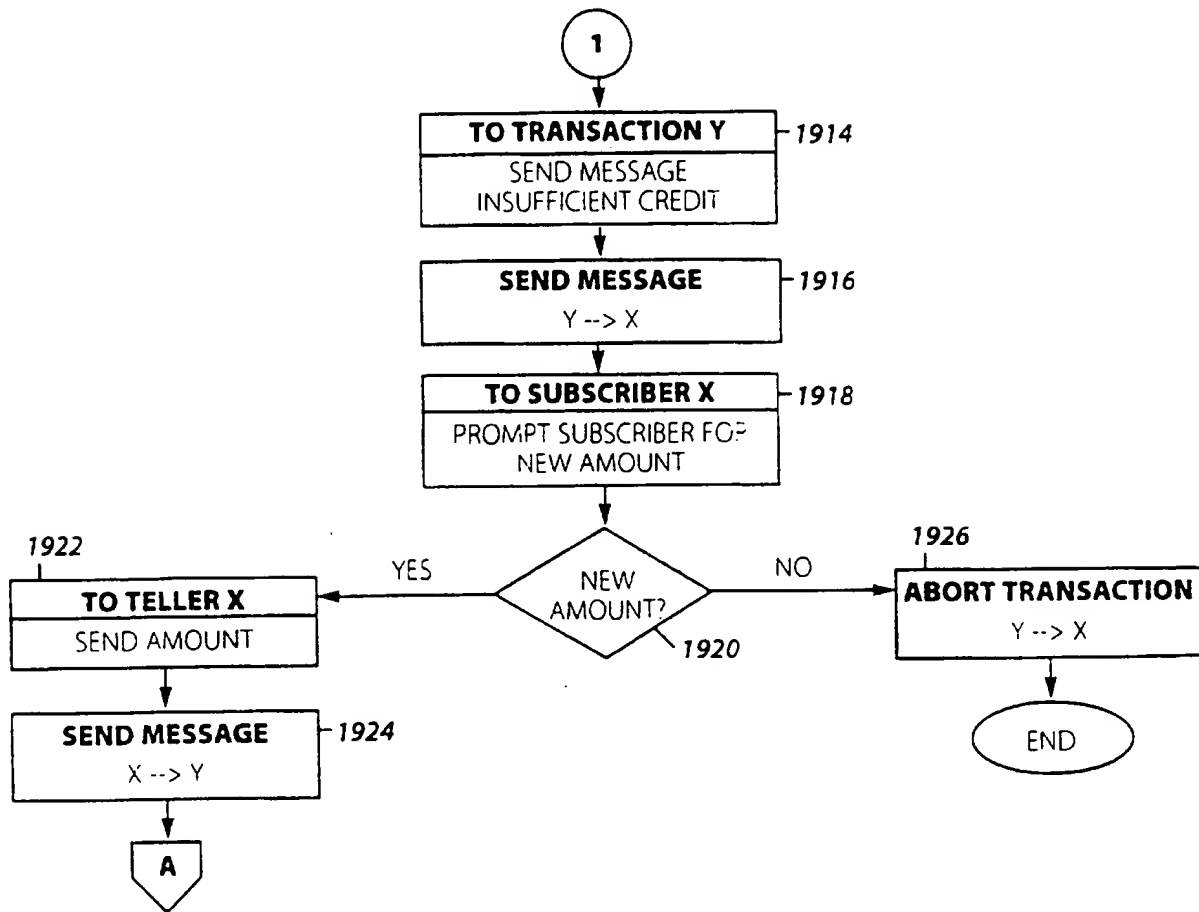


Figure 15A

Request Credit (C nt.)**Figure 15B**

Note Transfer History

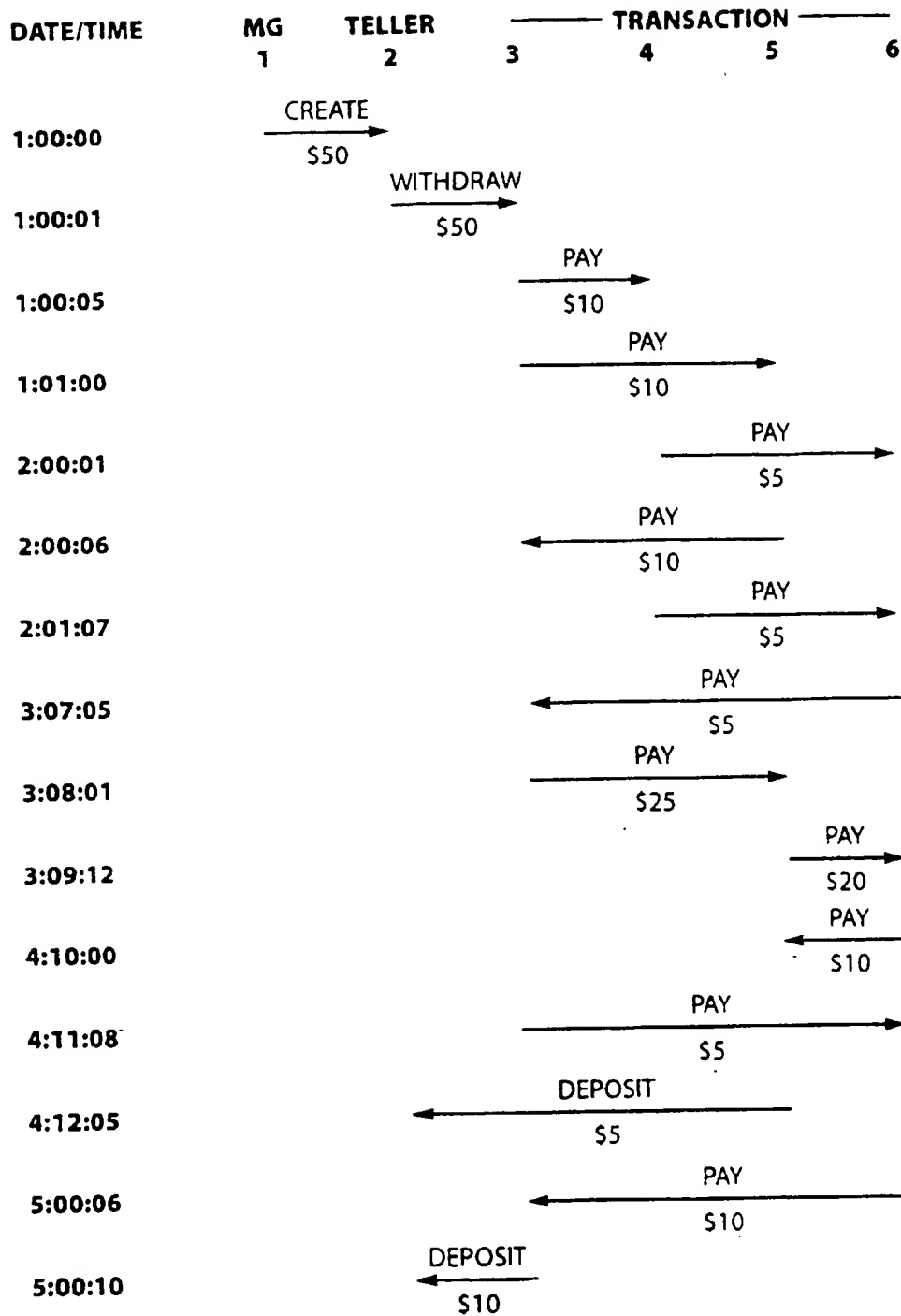
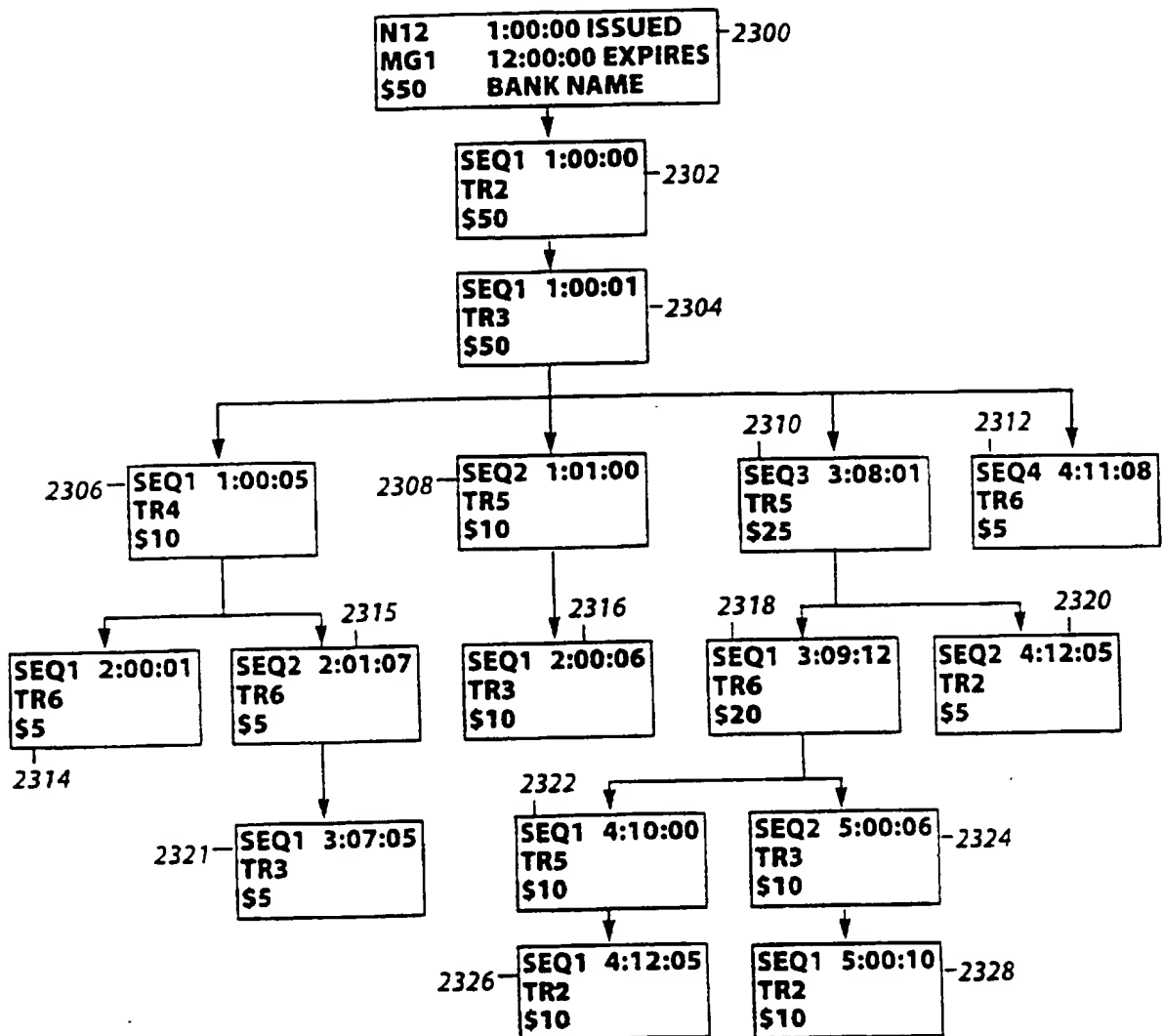


Figure 16

N te Transfer Tree



SEQ = SEQUENCE NUMBER
 TR = TRANSFEREE
 D:TT:TT = DATE:TIME

Figure 17

Link Money Module to Bank Account(s) for Bank Access

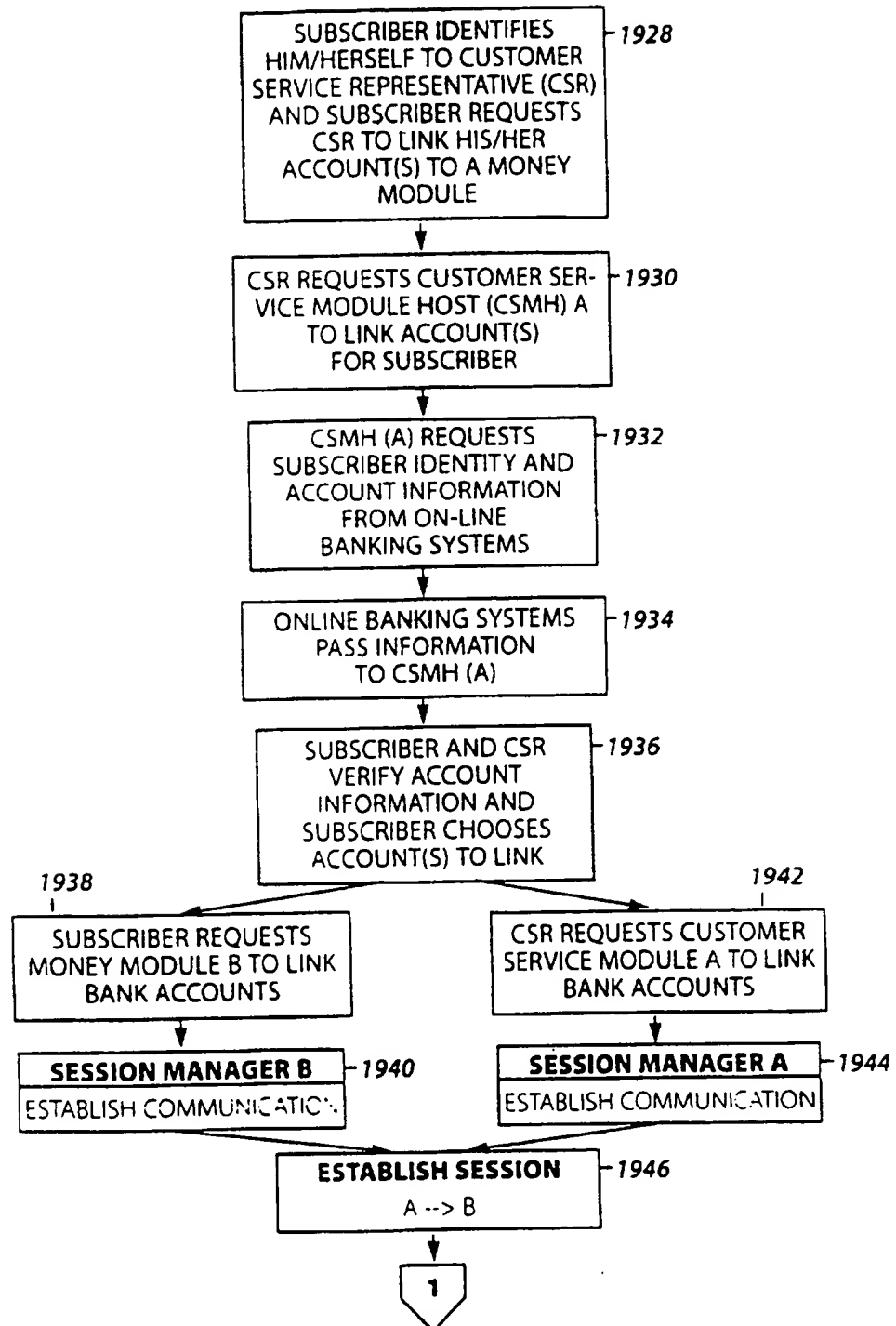
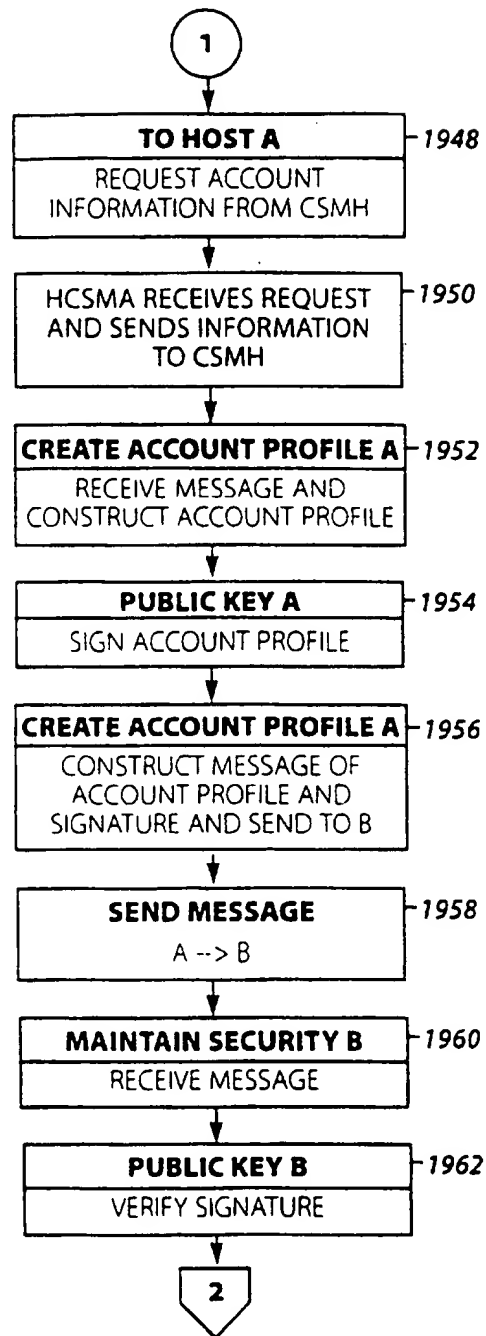
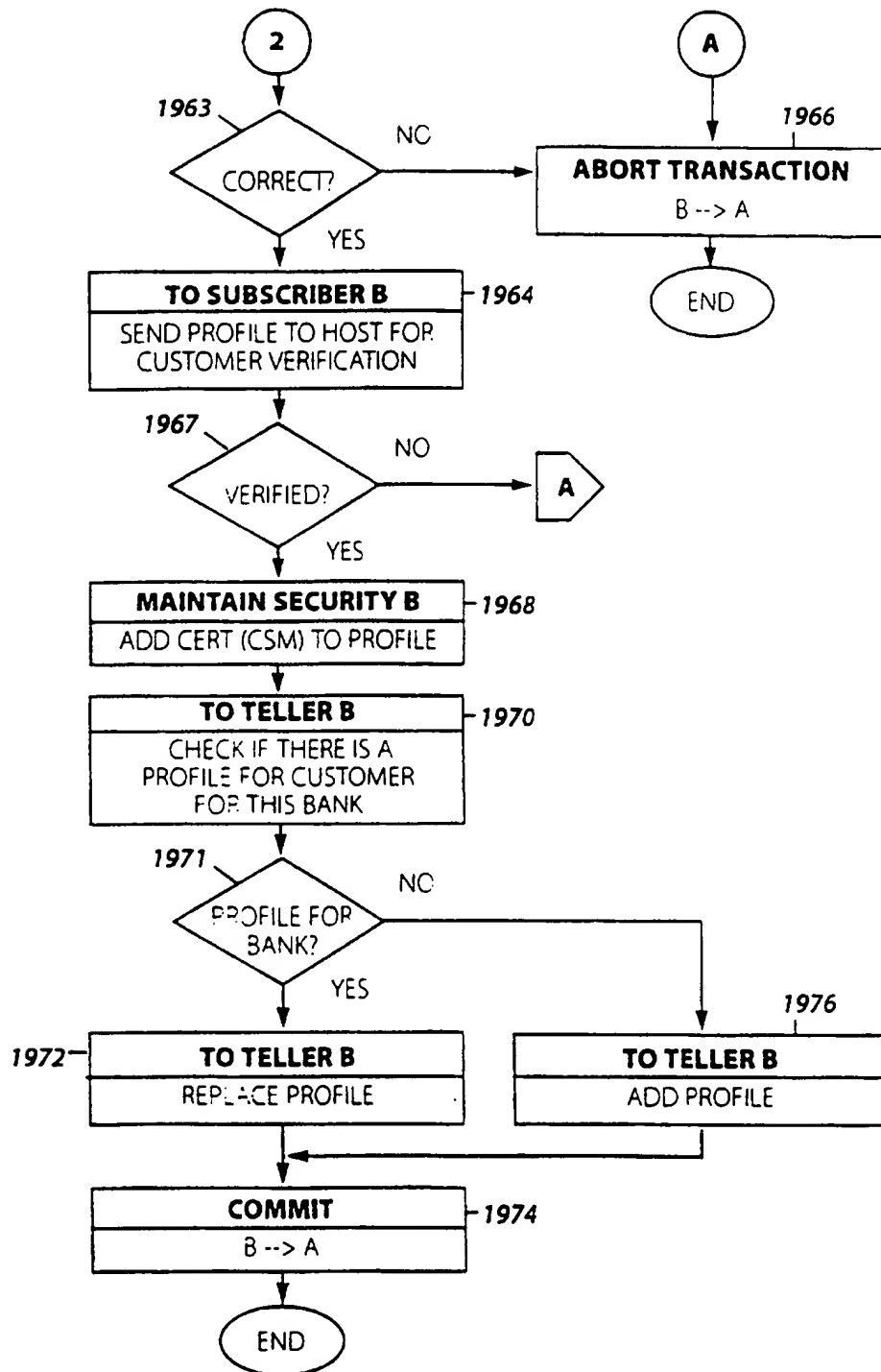


Figure 18A

Link Money Module to Bank Account(s) for Bank Access (Cont.)**Figure 18B**

Link Money Module to Bank Account(s) for Bank Access (Cont.)*Figure 18C*

Revalidate Money Module Link to Bank Account(s)

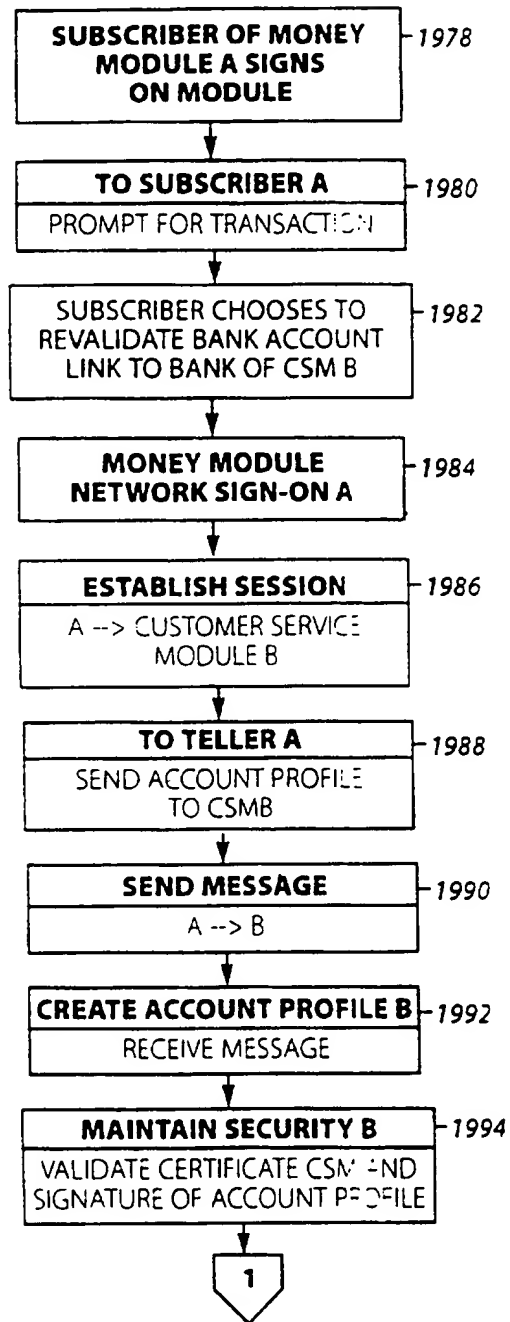
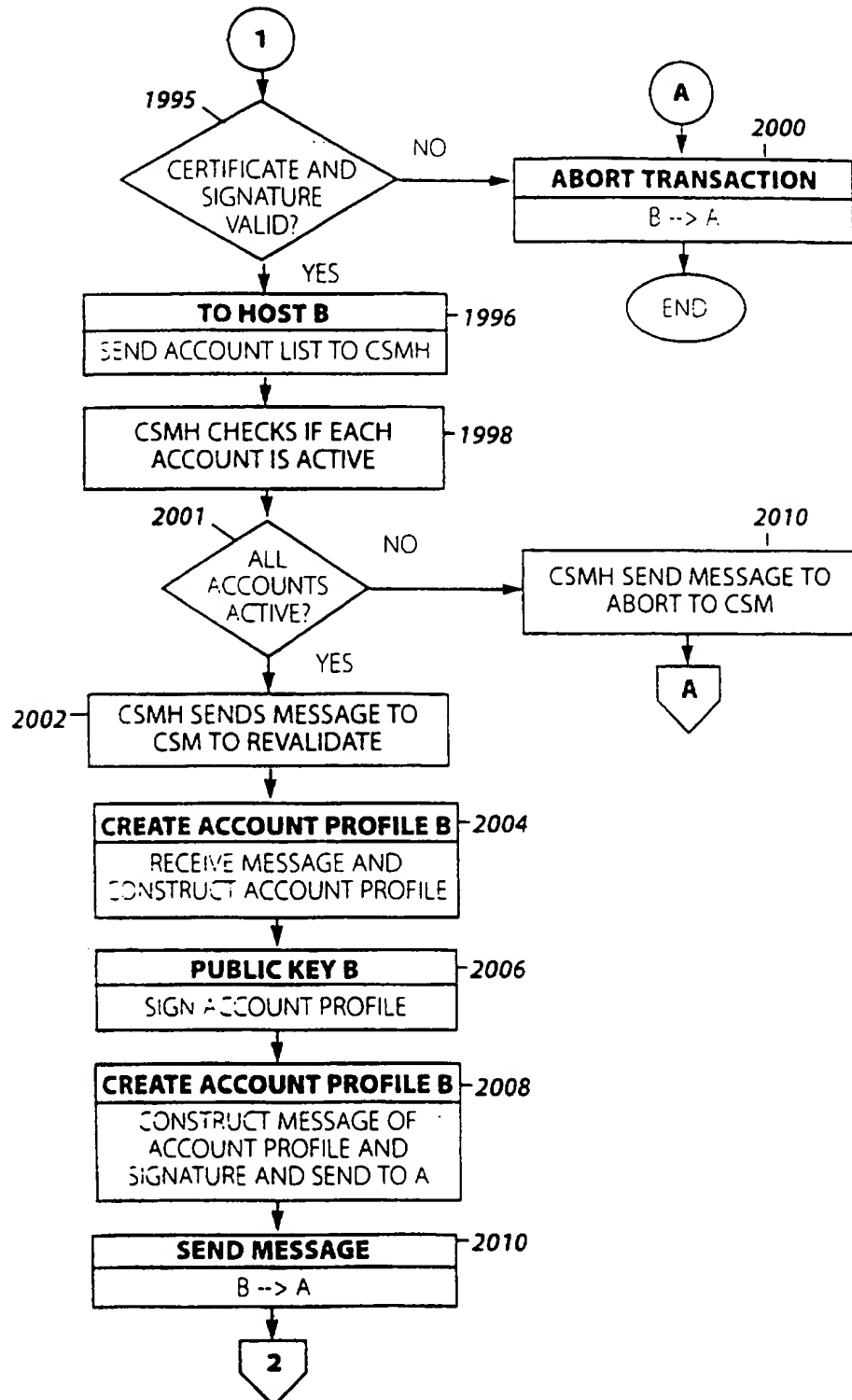
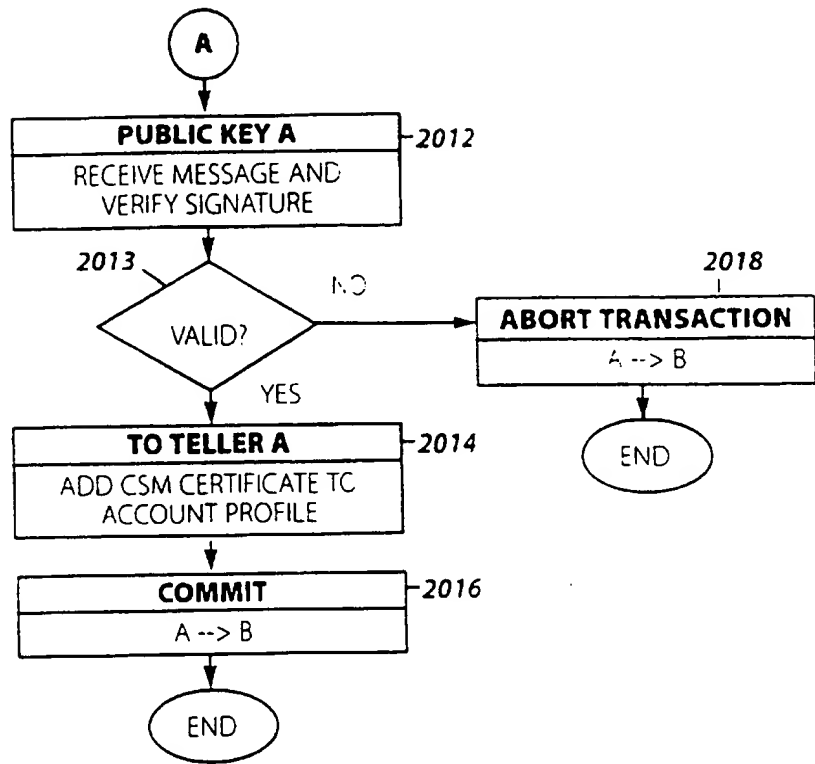


Figure 19A

Revalidate Money Module Link t Bank Account(s) (Cont.)**Figure 19B**

Revalidate Money Module Link to Bank Account(s) (Cont.)*Figure 19C*

Validate Account Number

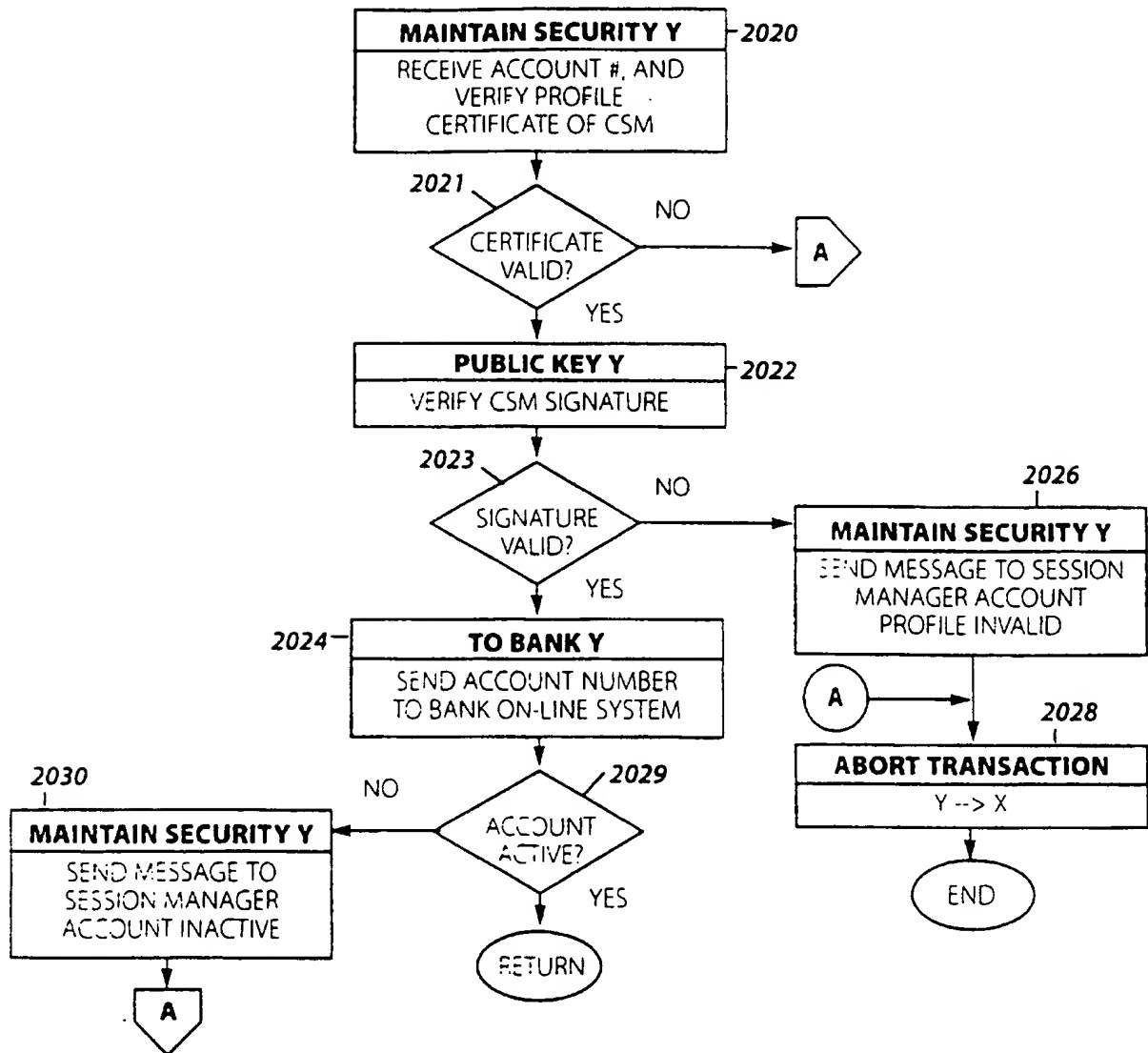


Figure 20

Create Lost Note(s) Claim

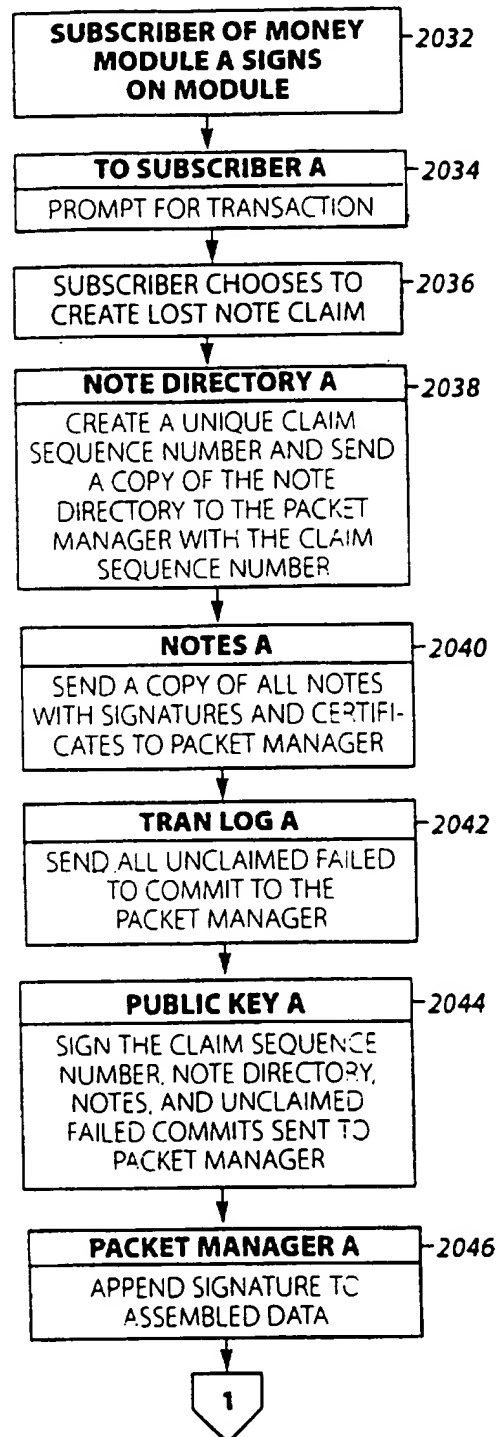
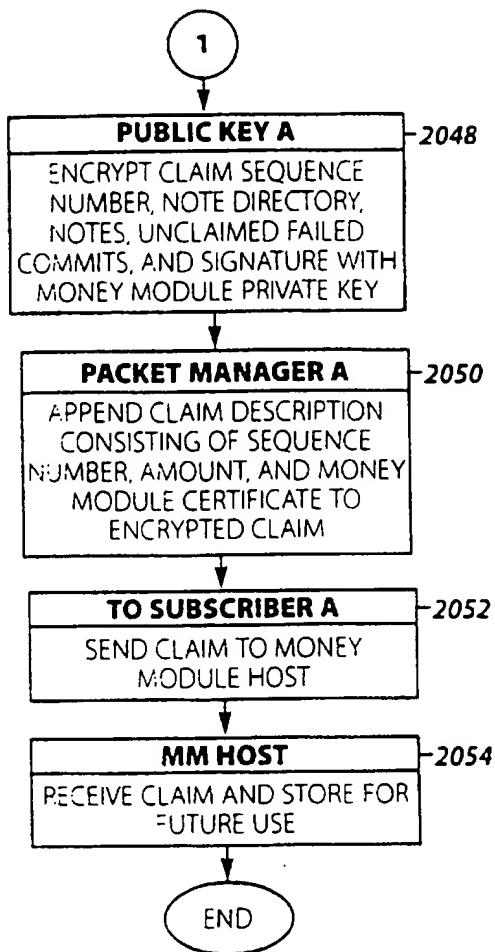
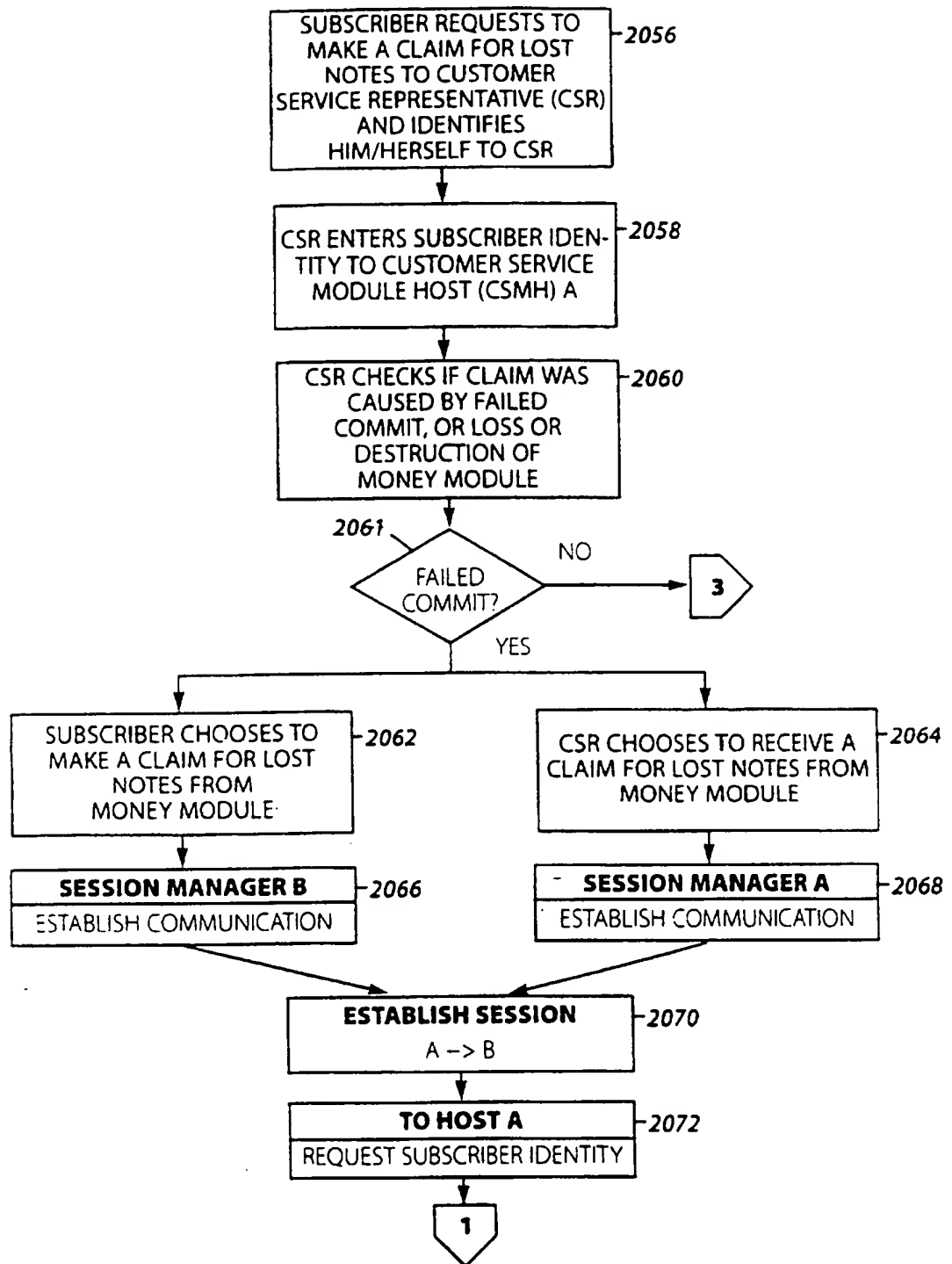
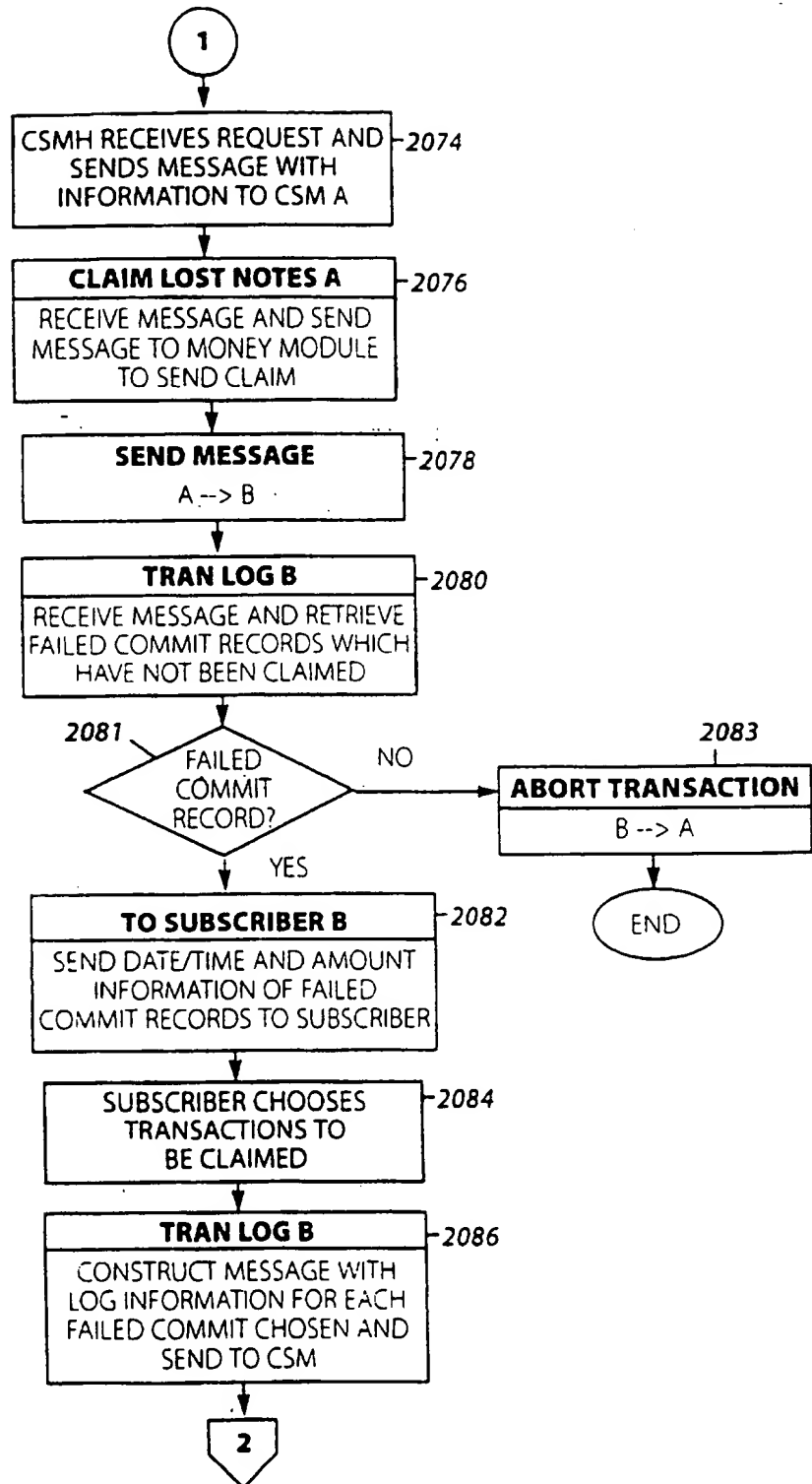
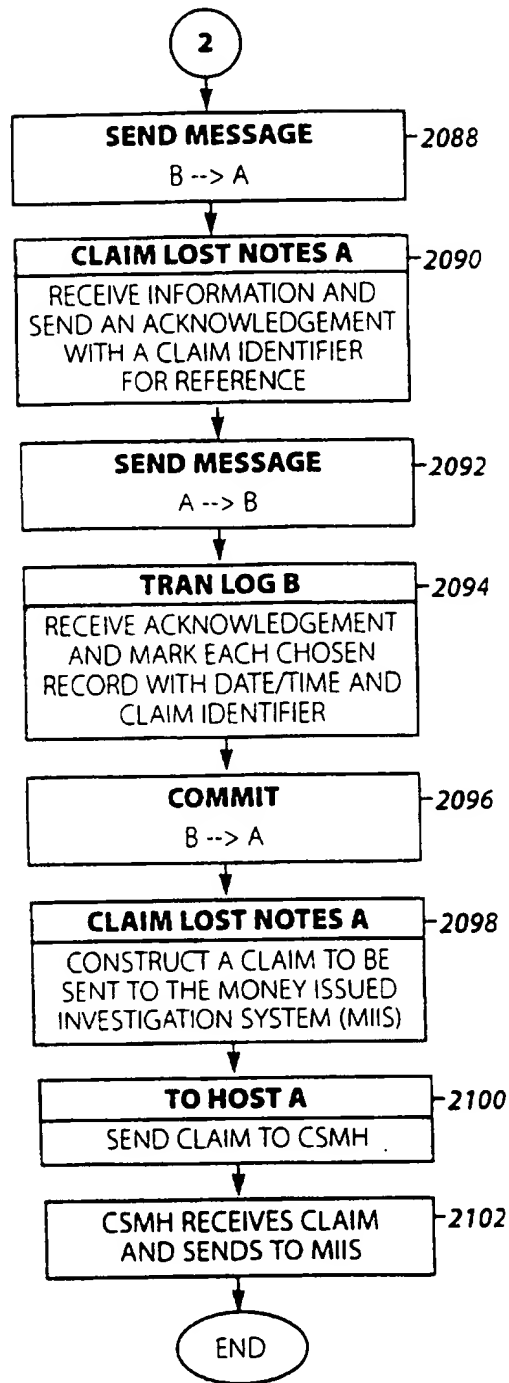


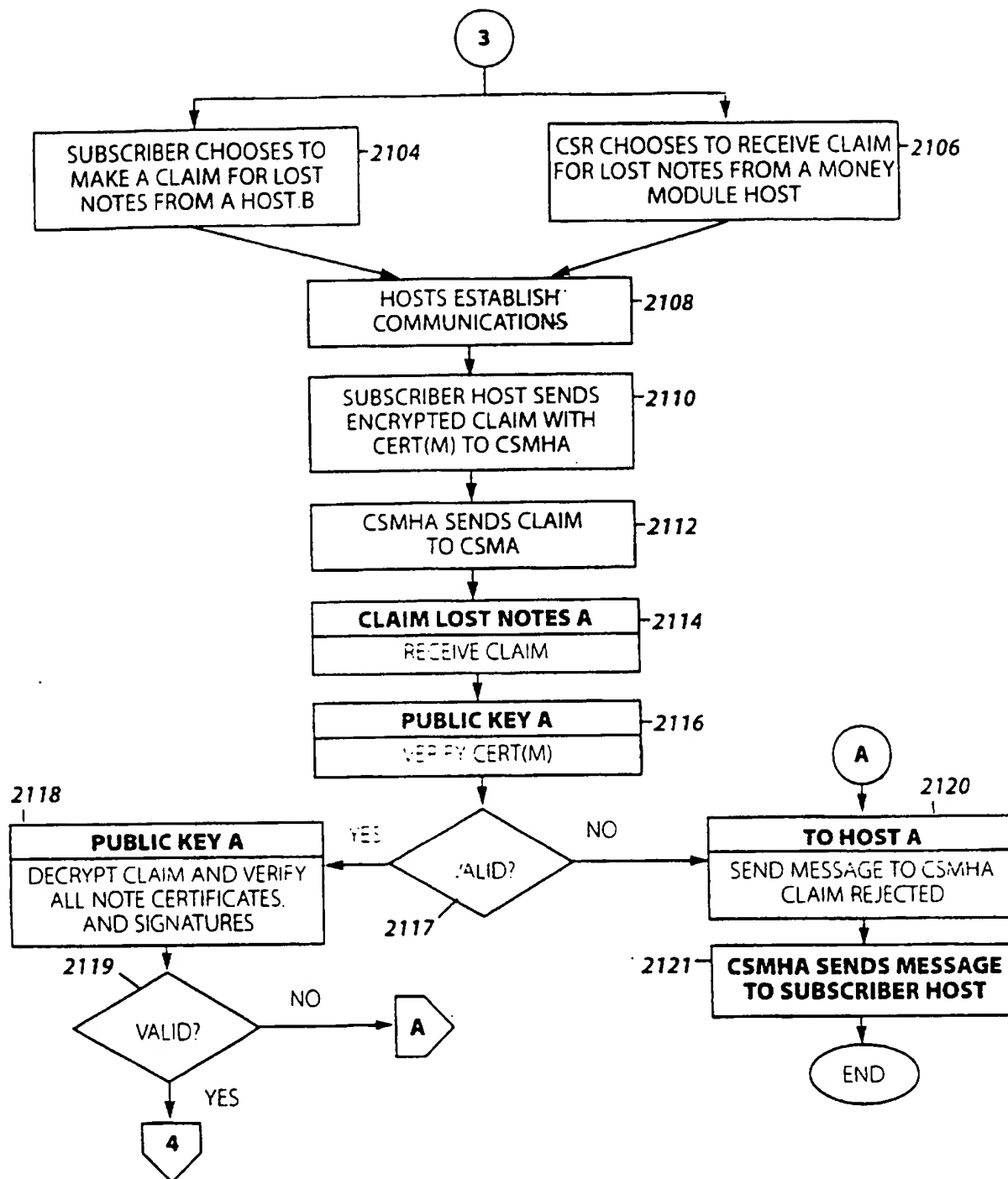
Figure 21A

Create Lost Note(s) Claim (Cont.)**Figure 21B**

Claim Limitations**Figure 22A**

Claim Lost Notes (C nt.)**Figure 22B**

Claim Lost Notes (C nt.)**Figure 22C**

Claim Lost Notes (C nt.)*Figure 22D*

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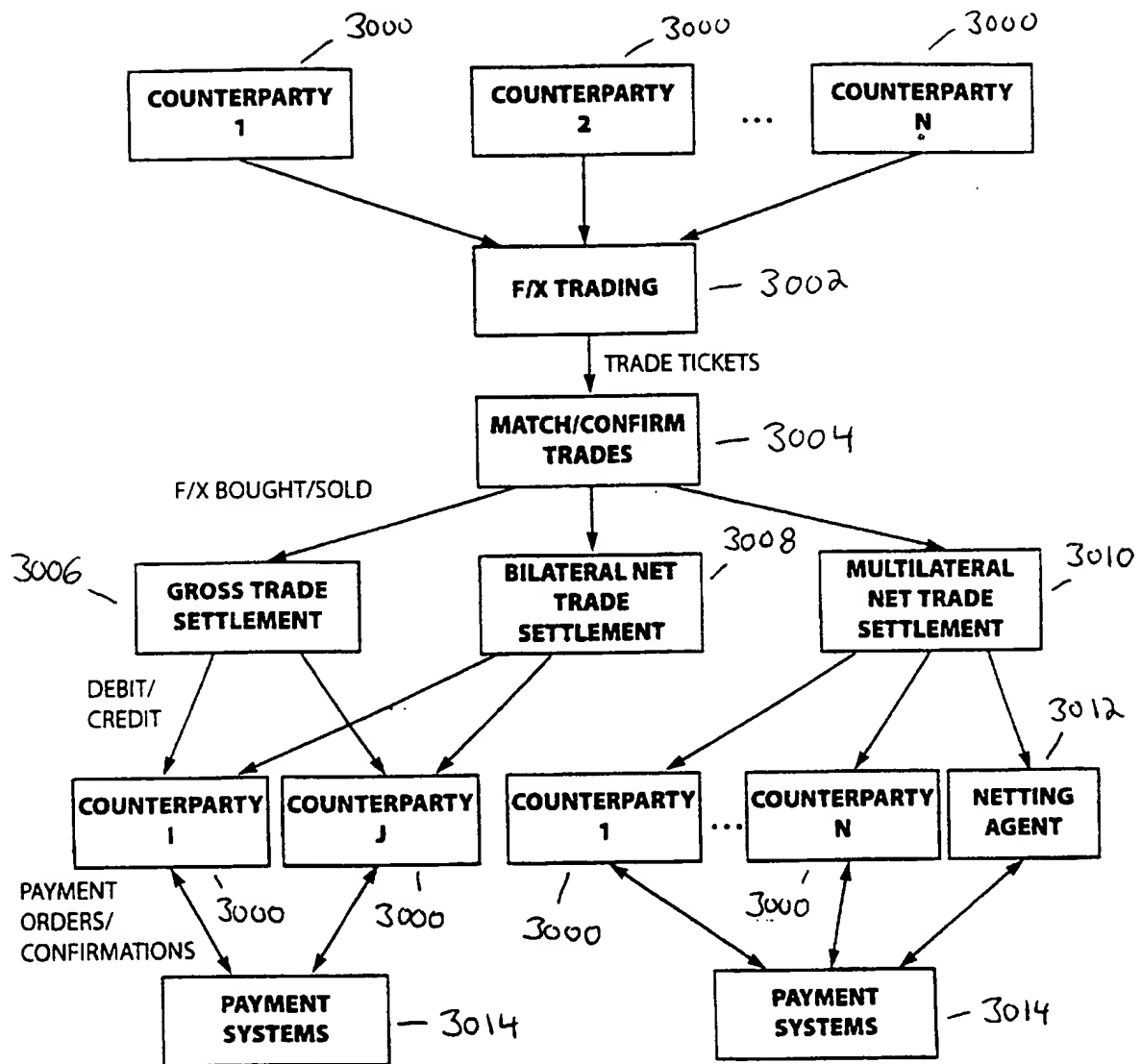
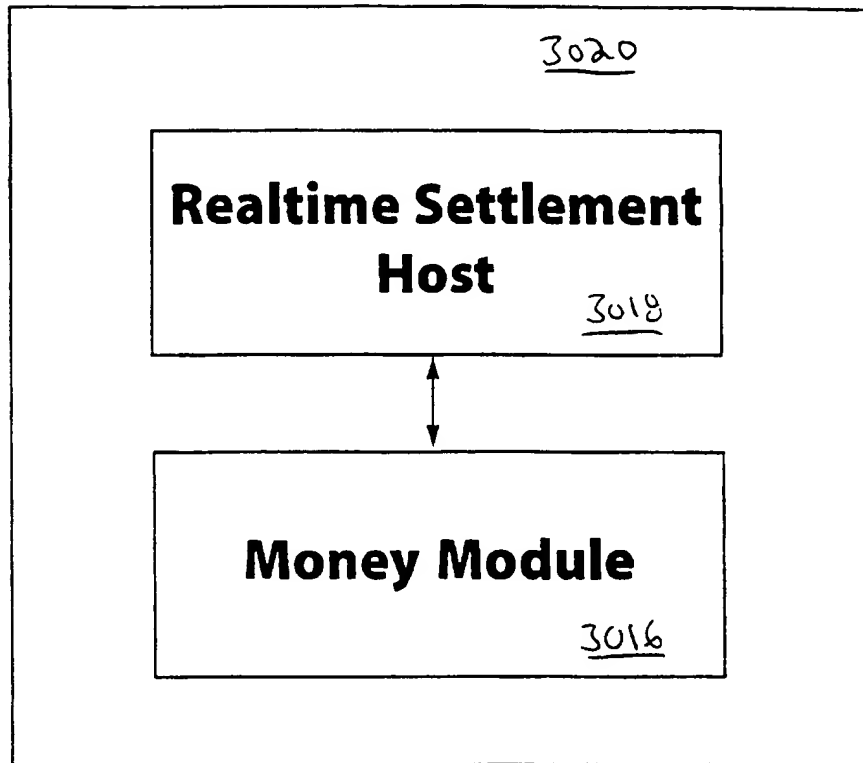
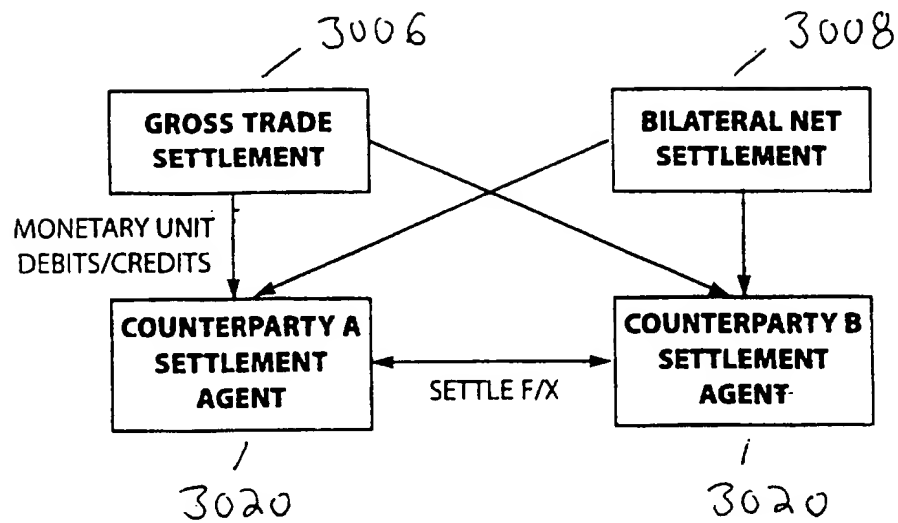
Foreign Exchange Process

Figure 23

Settlement Agent*Figure 24*

Gross/Bilateral F/X Settlement Configuration*Figure 25*

Multilateral F/X Settlement Configuration

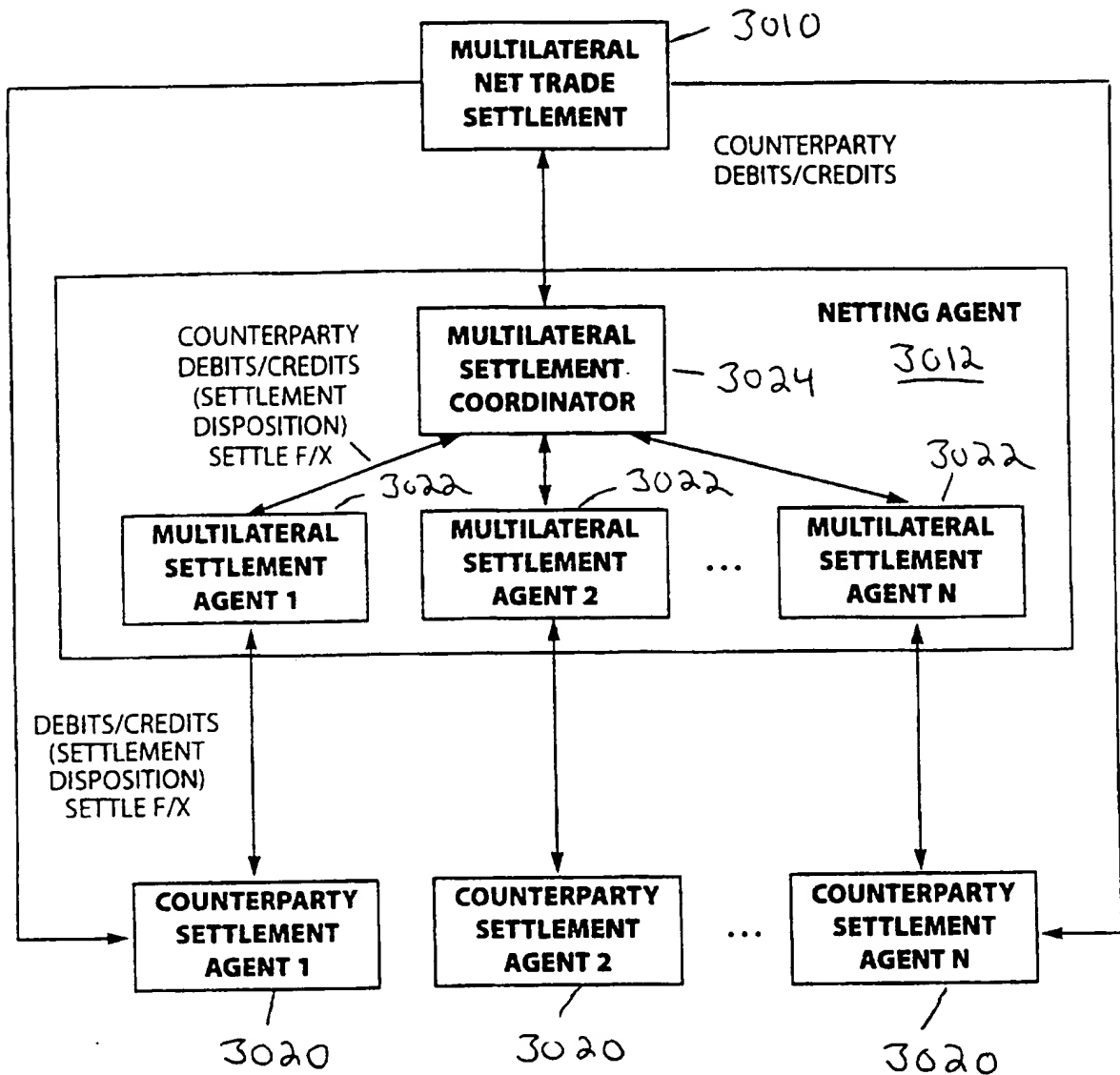
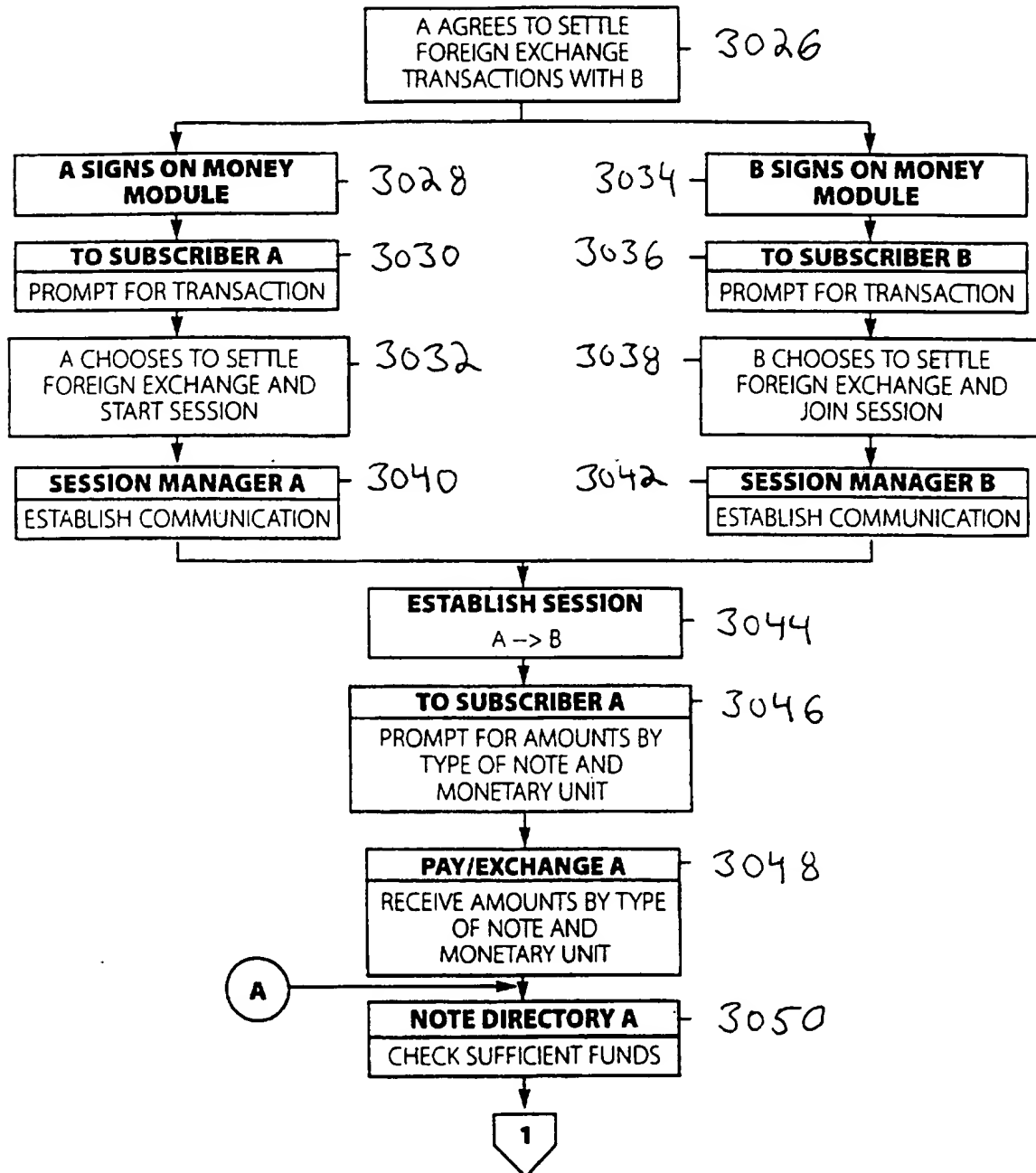
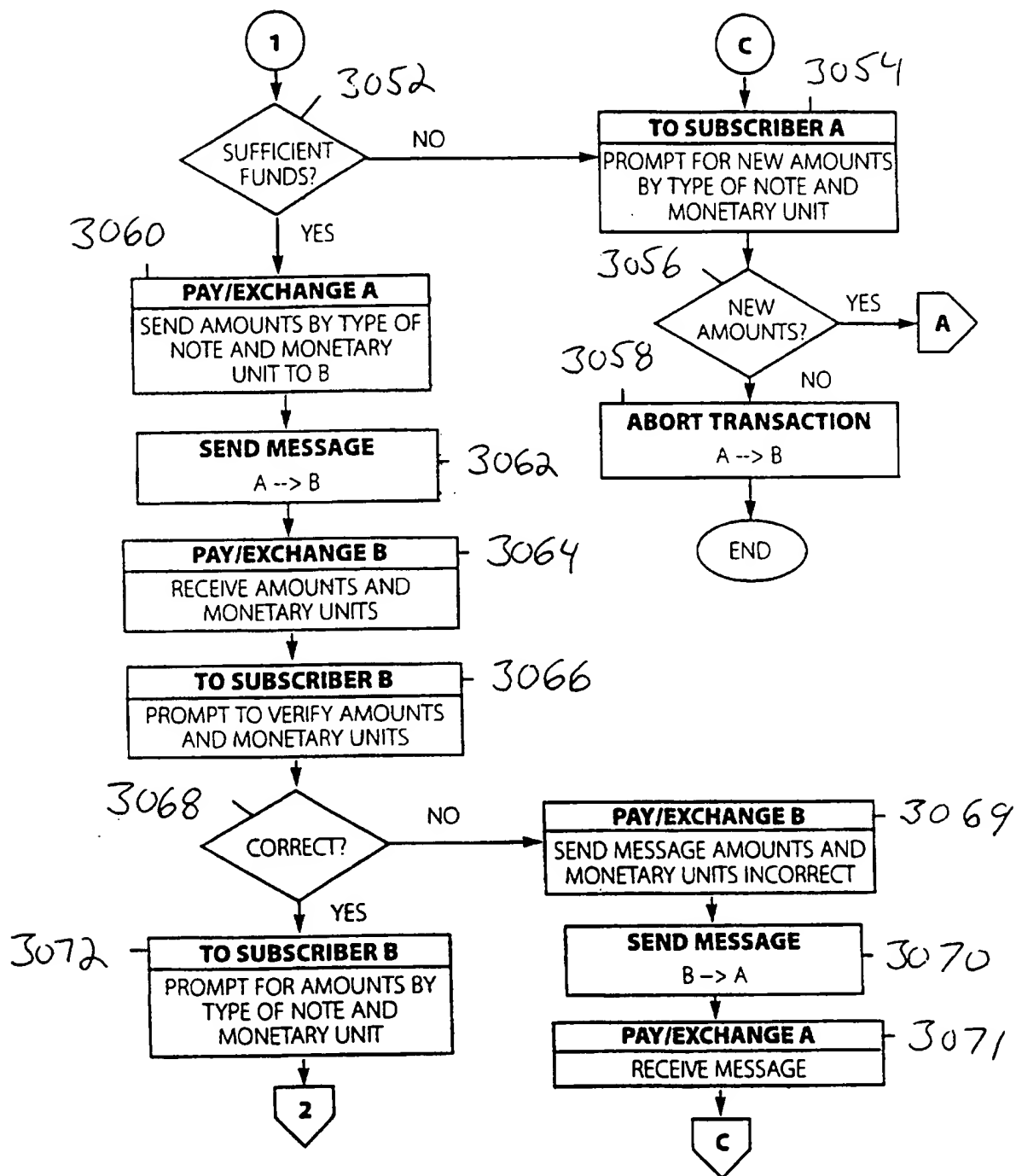
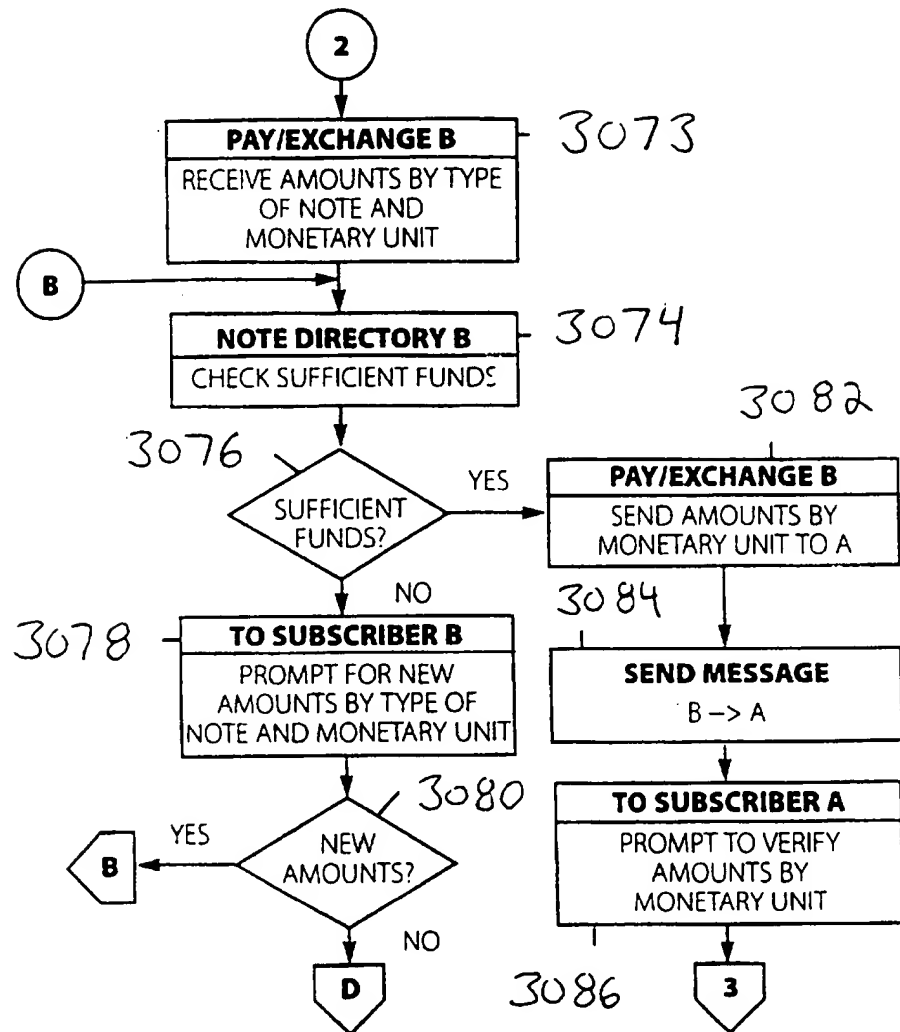


Figure 26

Settle F reign Exchange*Figure 27A*

Settle F reign Exchange (C nt.)**Figure 27B**

Settle F reign Exchange (C nt.)*Figure 27C*

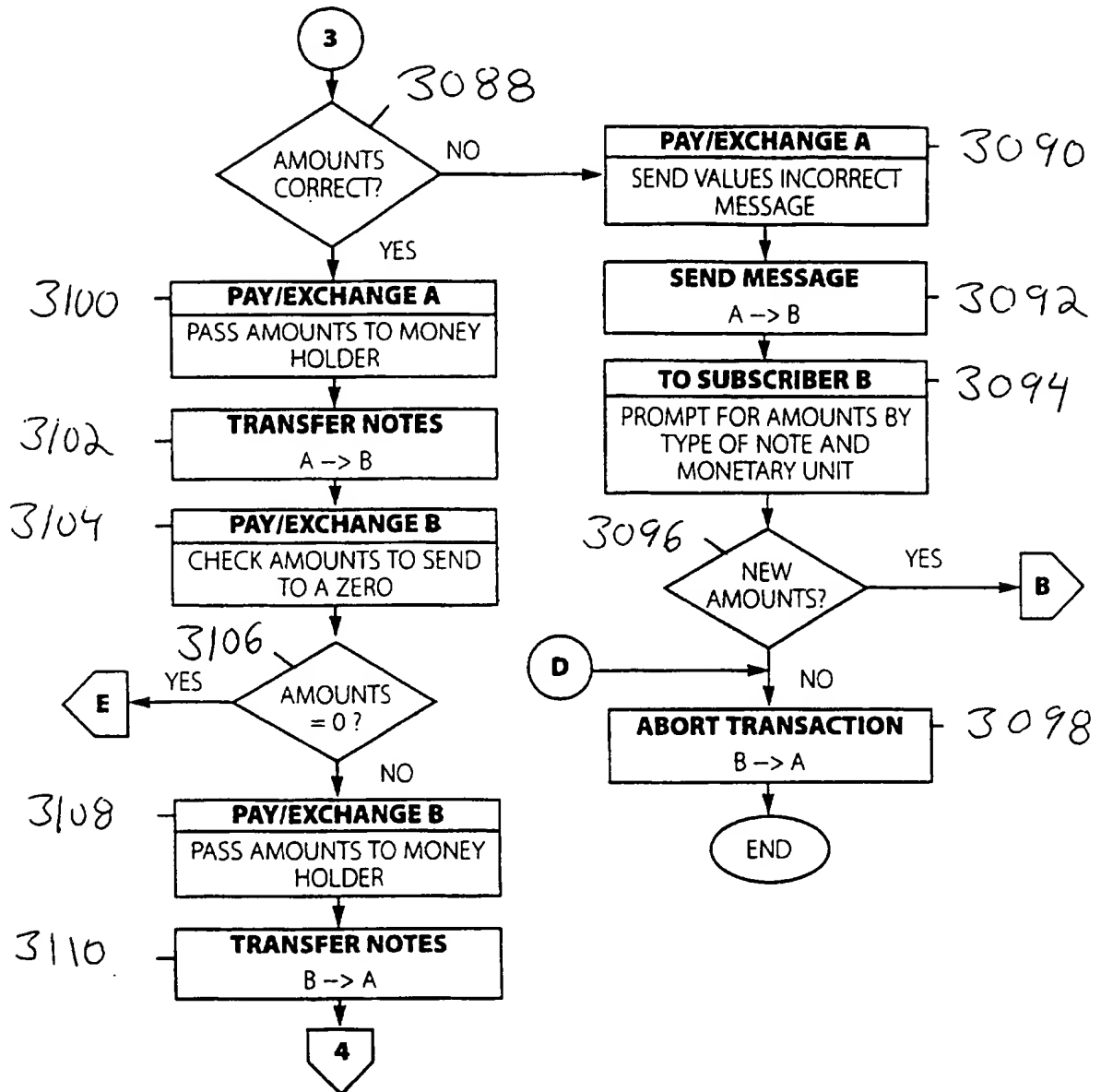
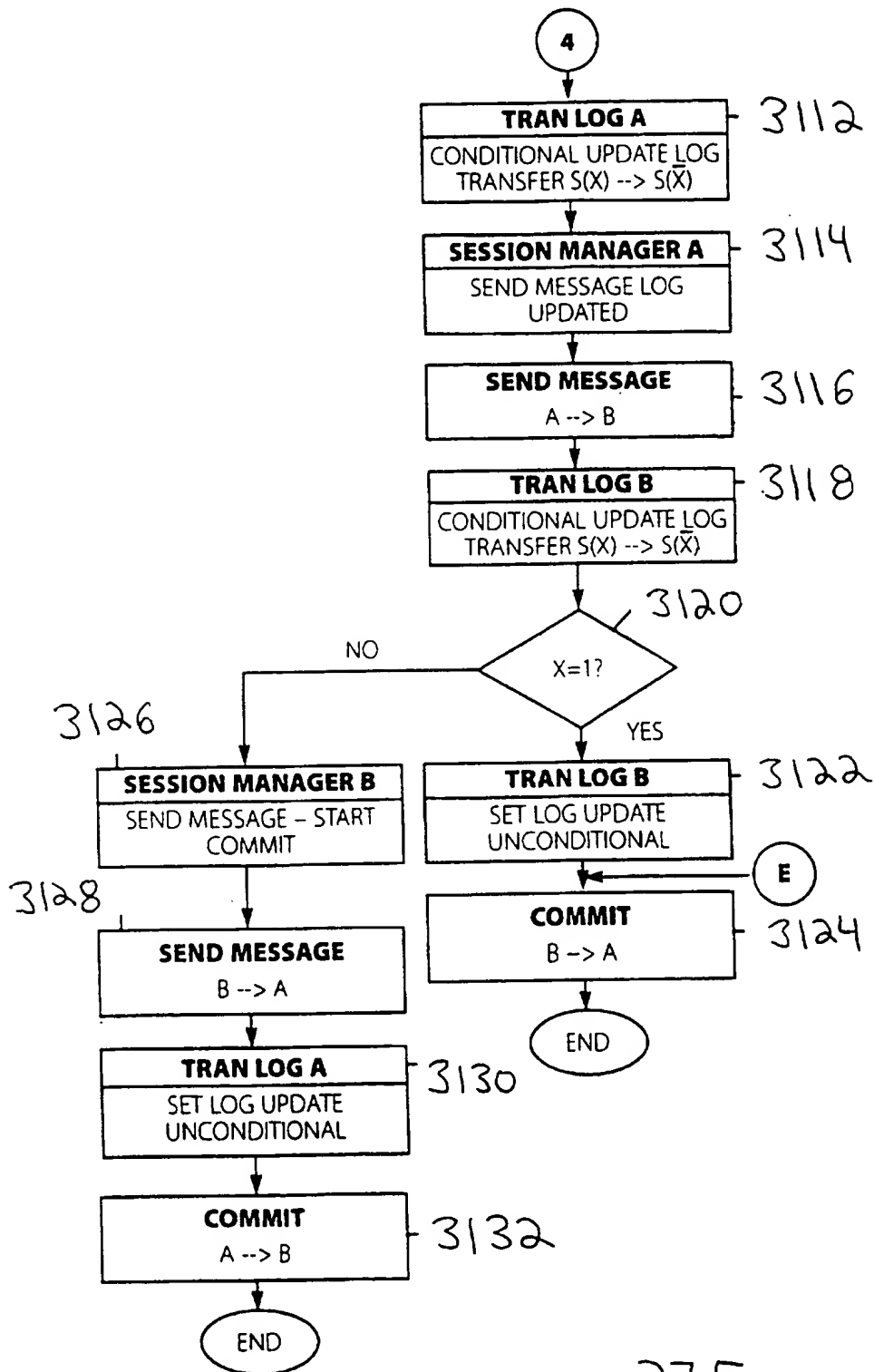
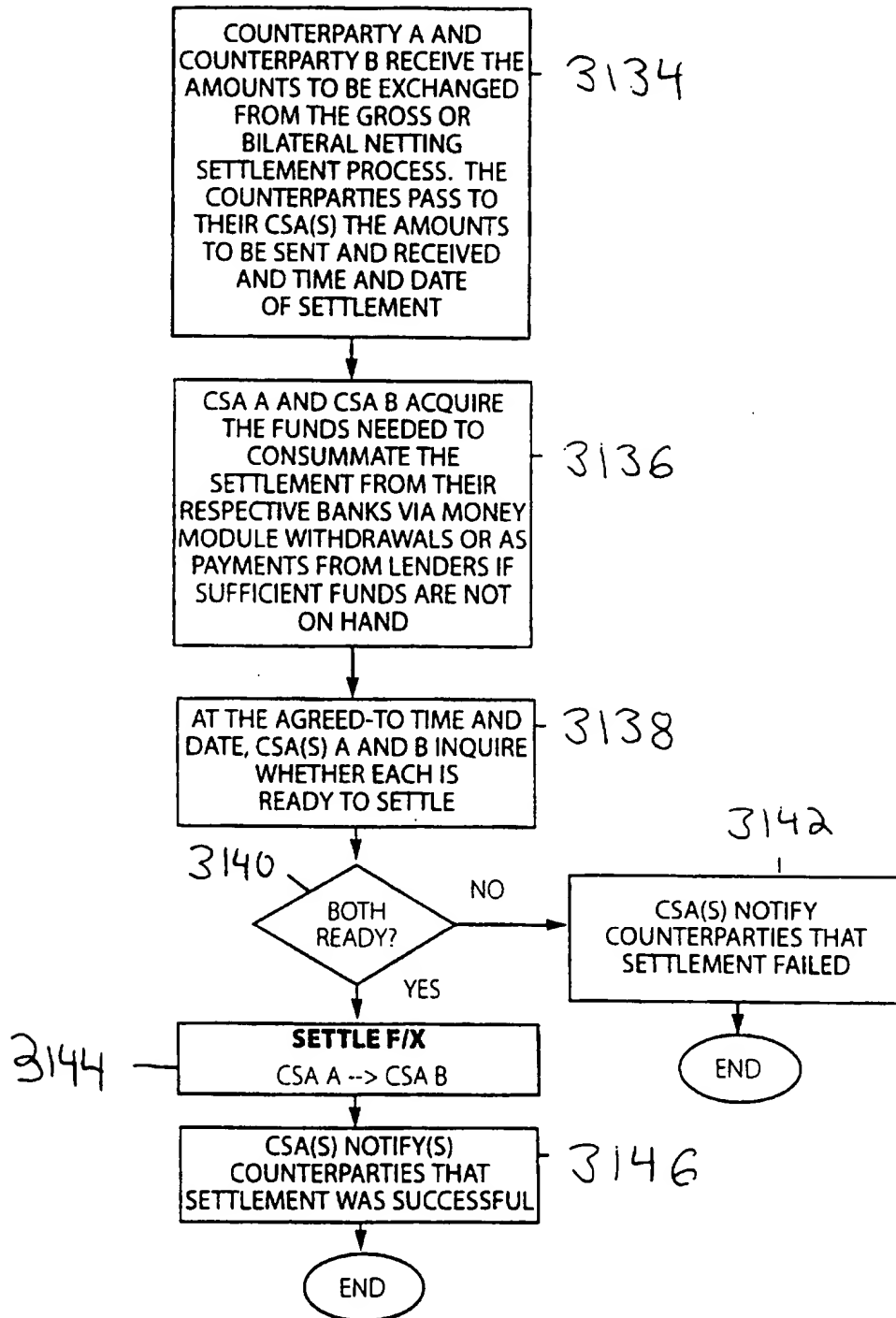
Settle Foreign Exchange (C nt.)

Figure 27D

Settle F reign Exchange (C nt.)*Figure 27E*

Realtime Gross/Bilateral F/X Settlement**Figure 28**